
# INDICATIVE PROJECT SUMMARIES

## Source Water Protection
## and
## Wellhead Protection Grant Programs

**FFY 1999 – 2002**

**Bureau of Resource Protection**
**Cynthia Giles, Assistant Commissioner**

**Division of Watershed Management**
**Glenn Haas, Director**

**Watershed Project Development Program**
**Steven McCurdy, Deputy Director**

**March 2003**

# MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

# SOURCE WATER PROTECTION GRANT PROGRAM

# WELLHEAD PROTECTION GRANT PROGRAM

# FFY 1999 – 2002

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**March 2003**

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## TABLE OF CONTENTS


**Introduction** vi

**Figure 1: Massachusetts River Basins for Water Resources Planning** vii

**Indicative Project Summaries: Source Water Protection Projects – 1999**

99-01/SWT Cherry Valley and Rochdale Source Water Protection Project 1
99-02/SWT Assawompsett Pond Source Water Protection Project 2
99-03/SWT Lake Cochichewick Source Water Protection Project 3
99-04/SWT Aaron Reservoir & Lily Pond Source Water Protection Project 4
99-05/SWT Granville Reservoir Source Water Protection Project 5
99-06/SWT Business Partnership Development for Cambridge Watershed Protection 6
99-07/SWT Crystal Lake Source Water Protection Project 7
99-08/SWT School Source Water Protection Project 8
99-09/SWT Robbins Pond Source Water Protection Project 9
99-10/SWT Running Gutter Reservoir Source Water Protection Project 10
99-11/SWT Palmer Source Water Protection Project 11
99-12/SWT Haverhill Watershed Management Plan Implementation Project 12
99-13/SWT Roaring Brook Reservoir Source Water Protection Project 13
99-14/SWT Resource Planning for Cranberry Bogs in Drinking Water Supply Areas 14

**Indicative Summaries: Wellhead Protection Projects – 1999**

99-01/WHP Brewster Wellhead Protection Project 15
99-02/WHP Huntington Wellhead Protection Project 16
99-03/WHP Douglas Wellhead Protection Project 17
99-04/WHP Bellingham Wellhead Protection Project 18
99-05/WHP Warren Wellhead Protection Project 19
99-07/WHP Ashfield Wellhead Protection Project 20
99-09/WHP Auburn Wellhead Protection Project 21
99-10/WHP Shelburne Falls Wellhead Protection Project 22
99-11/WHP Franklin Wellhead Protection Project 23
99-12/WHP Griswoldville Wellhead Protection Project 24
99-14/WHP Templeton Wellhead Protection Project 25
99-15/WHP Stoughton Wellhead Protection Project 26
99-16/WHP Gilbertville Wellhead Protection Project 27
99-17/WHP Cool Sandy Beach Wellhead Protection Project 28
99-18/WHP Erving Wellhead Protection Project 29
99-19/WHP Burlington Wellhead Protection Project 30
99-20/WHP Avon Wellhead Protection Project 31
99-22/WHP Dudley Wellhead Protection Project 32
99-23/WHP Ashland Wellhead Protection Project 33
99-24/WHP Wareham Wellhead Protection Project 34

**Indicative Summaries: Source Water Protection Projects – 2000**

00-01/SWT Lake Cochichewick Source Water Protection Project-Phase II 35
00-02/SWT Powow River Source Water Protection Project 36
00-03/SWT Rutland and Worcester Source Water Protection Project 37

00-04/SWT Granville Source Water Protection Project 38
00-05/SWT Austin Brook Reservoir Source Water Protection Project 39
00-06/SWT Crystal Lake Source Water Protection Project 40
00-07/SWT First Herring Brook Source Water Protection Project 41
00-08/SWT Millvale Reservoir Source Water Protection Project 42
00-09/SWT Atkins Reservoir Source Water Protection Project 43
00-10/SWT Seekonk Source Water Protection Project 44
00-11/SWT Canoe River Aquifer Source Water Protection Project 45
00-12/SWT Danvers/Middleton Source Water Protection Project 46
00-13/SWT Cape Cod Source Water Protection Project 47
00-14/SWT Old Oaken Bucket Pond Source Water Protection Project 48

**Indicative Summaries: Wellhead Protection Projects – 2000**
00-01/WHP Green Meadows School Wellhead Protection Project 49
00-02/WHP Ayer Wellhead Protection Project 50
00-03/WHP Saint Vincent's Wellhead Protection Project 51
00-04/WHP Acton Wellhead Protection Project 52
00-05/WHP Shelburne Falls Wellhead Protection Project-Phase II 53
00-06/WHP Wayland Wellhead Protection Project 54
00-07/WHP Lanesborough Wellhead Protection Project 55
00-08/WHP West Newbury Wellhead Protection Project 56
00-09/WHP Dedham-Westwood Wellhead Protection Project 57
00-10/WHP Hadley Wellhead Protection Project 58
00-11/WHP Cheshire Wellhead Protection Project 59
00-12/WHP Ware Wellhead Protection Project 60
00-13/WHP Sanderson Academy Wellhead Protection Project 61
00-14/WHP Sheffield Wellhead Protection Project 62
00-15/WHP Whately Wellhead Protection Project 63
00-16/WHP West Groton Wellhead Protection Project 64

**Indicative Summaries: Source Water Protection Projects – 2001**
01-01/SWT Northampton Source Water Protection Project 65
01-02/SWT Lawrence Source Water Protection Project 66
01-03/SWT Lynn Source Water Protection Project 67
01-04/SWT Newburyport Source Water Protection Project 68
01-05/SWT Westfield Source Water Protection Project 69
01-06/SWT Camp Wind-in-the-Pines Source Water Protection Project 70
01-07/SWT Swansea Source Water Protection Project 71
01-08/SWT Andover Reservoir Source Water Protection Project 72
01-09/SWT West Springfield Source Water Protection Project 73
01-10/SWT Ashburnham Source Water Protection Project 74
01-11/SWT Ipswich Source Water Protection Project 75
01-12/SWT Agricultural Technical Assistance Project 76

**Indicative Summaries: Wellhead Protection Projects – 2001**
01-01/WHP Florida Wellhead Protection Project 77
01-02/WHP Brimfield Wellhead Protection Project 78
01-03/WHP Bay Path High School Wellhead Protection Project 79

01-04/WHP Auburn Wellhead Protection Project-Phase II 80
01-05/WHP Truro Wellhead Protection Project 81
01-06/WHP Wayland Wellhead Protection Project-Phase II 82
01-07/WHP Dunstable Wellhead Protection Project 83
01-08/WHP Easthampton Wellhead Protection Project 84
01-09/WHP West Stockbridge Wellhead Protection Project 85
01-10/WHP Old Colony VoTech Wellhead Protection Project 86
01-11/WHP Marshfield Wellhead Protection Project 87
01-12/WHP Chelmsford Wellhead Protection Project 88
01-13/WHP Russell Wellhead Protection Project 89
01-14/WHP Hadley Wellhead Protection Project 90
01-15/WHP South Grafton Wellhead Protection Project 91
01-16/WHP Pepperell Wellhead Protection Project 92
01-17/WHP West Brookfield Wellhead Protection Project 93

**Indicative Summaries: Source Water Protection Projects – 2002**
02-01/SWT Pittsfield Source Water Protection Project 94
02-02/SWT Hubbardston Source Water Protection Project 95
02-03/SWT South Deerfield Watershed Forest Management Protection Project 96
02-04/SWT Bridgewater Source Water Protection Project 97
02-05/SWT Lowell Source Water Protection Project 98
02-06/SWT Greenfield Source Water Protection Project 99
02-07/SWT Amherst Source Water Protection Project 100
02-08/SWT Upper Neponset River Source Water Protection Project 101
02-09/SWT Springfield Source Water Protection Project 102
02-10/SWT South Deerfield Source Water Protection Project 103

**Indicative Summaries: Wellhead Protection Projects – 2002**
02-01/WHP Leverett Wellhead Protection Project 104
02-02/WHP Bridgewater Wellhead Protection Project 105
02-03/WHP Oakwood Wellhead Protection Project 106
02-04/WHP Three Rivers Wellhead Protection Project 107
02-05/WHP Uxbridge Wellhead Protection Project 108
02-06/WHP Rockport Wellhead Protection Project 109
02-07/WHP North Reading Wellhead Protection Project 110
02-08/WHP Cummington Wellhead Protection Project 111
02-10/WHP Hudson Wellhead Protection Project 112
02-11/WHP Bernardston Wellhead Protection Project 113
02-12/WHP Northfield Mount Hermon Wellhead Protection Project 114
02-13/WHP Auburn Wellhead Protection Project-Phase III 115
02-14/WHP Canton Wellhead Protection Project 116
02-15/WHP Sturbridge Wellhead Protection Project 117
02-16/WHP Barnstable Wellhead Protection Project 118

**Indicative Summaries by Basin, 1999 - 2002**


**Blackstone**

00-03/SWT Rutland and Worcester Source Water Protection Project 37
99-03/WHP Douglas Wellhead Protection Project 16
99-04/WHP Bellingham Wellhead Protection Project 17
99-09/WHP Auburn Wellhead Protection Project 21
01-04/WHP Auburn Wellhead Protection Project-Phase II 80
01-15/WHP South Grafton Wellhead Protection Project 91
02-05/WHP Uxbridge Wellhead Protection Project 108
02-13/WHP Auburn Wellhead Protection Project Phase-III 115

**Boston Harbor**

99-04/SWT Aaron Reservoir & Lily Pond Source Water Protection Project 4
99-15/WHP Stoughton Wellhead Protection Project 26
02-08/SWT Upper Neponset River Source Water Protection Project 101
02-14/WHP Canton Wellhead Protection Project 116

**Buzzards Bay**

99-24/WHP Wareham Wellhead Protection Project 34
01-10/WHP Old Colony Vo-Tech Wellhead Protection Project 86

**Cape Cod**

00-13/SWT Cape Cod Source Water Protection Project 47
99-01/WHP Brewster Wellhead Protection Project 15
01-05/WHP Truro Wellhead Protection Project 81
02-16/WHP Barnstable Wellhead Protection Project 118

**Charles**

00-09/WHP Dedham-Westwood Wellhead Protection Project 57
99-06/SWT Business Partnership Development for Cambridge Watershed Protection 65
99-11/WHP Franklin Wellhead Protection Project 23

**Chicopee**

00-03/SWT Rutland and Worcester Source Water Protection Project 37
00-12/WHP Ware Wellhead Protection Project 60
99-05/WHP Warren Wellhead Protection Project 19
99-16/WHP Gilbertville Wellhead Protection Project 27
99-17/WHP Cool Sandy Beach Wellhead Protection Project 28
99-11/SWT Palmer Source Water Protection Project 11
01-02/WHP Brimfield Wellhead Protection Project 78
01-17/WHP West Brookfield Wellhead Protection Project 93
02-04/WHP Three Rivers Wellhead Protection Project 107
02-02/SWT Hubbardston Source Water Protection Project 95

**Concord**

00-04/WHP Acton Wellhead Protection Project 52
00-06/WHP Wayland Wellhead Protection Project 54
99-23/WHP Ashland Wellhead Protection Project 33

01-06/WHP Wayland Wellhead Protection Project-Part II 82
01-12/WHP Chelmsford Wellhead Protection Project 88
02-10/WHP Hudson Wellhead Protection Project 112

**Connecticut**
00-09/SWT Atkins Reservoir Source Water Protection Project 43
00-01/WHP Green Meadows School Wellhead Protection Project 49
00-10/WHP Hadley Wellhead Protection Project 58
00-15/WHP Whately Wellhead Protection Project 63
99-10/SWT Running Gutter Reservoir Source Water Protection Project 10
99-13/SWT Roaring Brook Reservoir Source Water Protection Project 13
99-18/WHP Erving Wellhead Protection Project 29
01-08/WHP Easthampton Wellhead Protection Project 84
01-14/WHP Hadley Wellhead Protection Project-Phase II 90
01-01/SWT Northampton Source Water Protection Project 65
02-01/WHP Leverett Wellhead Protection Project 104
02-03/WHP Oakwood Wellhead Protection Project 106
02-11/WHP Bernardston Wellhead Protection Project 113
02-12/WHP Northfield Mount Hermon Wellhead Protection Project 114
02-03/SWT South Deerfield Watershed Forest Management Protection Project 96
02-07/SWT Amherst Source Water Protection Project 100
02-10/SWT South Deerfield Source Water Protection Project 103

**Deerfield**
00-05/WHP Shelburne Falls Wellhead Protection Project-Phase II 53
00-13/WHP Sanderson Academy Wellhead Protection Project 61
99-07/WHP Ashfield Wellhead Protection Project 20
99-10/WHP Shelburne Falls Wellhead Protection Project 22
99-12/WHP Griswoldville Wellhead Protection Project 24
01-01/WHP Florida Wellhead Protection Project 77
02-06/SWT Greenfield Source Water Protection Project 99

**Housatonic**
00-07/WHP Lanesborough Wellhead Protection Project 55
00-14/WHP Sheffield Wellhead Protection Project 62
01-09/WHP West Stockbridge Wellhead Protection Project 85
02-01/SWT Pittsfield Source Water Protection Project 94

**Hudson**
00-11/WHP Cheshire Wellhead Protection Project 59

**Ipswich**
00-12/SWT Danvers/Middleton Source Water Protection Project 46
01-11/SWT Ipswich Source Water Protection Project 75
02-07/WHP North Reading Wellhead Protection Project 110

**Merrimack**
00-01/SWT Lake Cochichewick Source Water Protection Project-Phase II 35
00-02/SWT Powow River Source Water Protection Project 36

00-08/SWT Millvale Reservoir Source Water Protection Project 42
00-02/WHP Ayer Wellhead Protection Project 50
00-08/WHP West Newbury Wellhead Protection Project 56
99-03/SWT Lake Cochichewick Source Water Protection Project 3
99-12/SWT Haverhill Watershed Management Plan Implementation Project 12
01-08/SWT Andover Source Water Protection Project 72
01-02/SWT Lawrence Source Water Protection Project 66
01-10/SWT Ashburnham Source Water Protection Project 74
01-12/WHP Town of Chelmsford Wellhead Protection Project 88
01-04/SWT Newburyport Source Water Protection Project 68
02-05/SWT Lowell Source Water Protection Project 98

**Millers**
00-06/SWT Crystal Lake Source Water Protection Project 40
99-14/WHP Templeton Wellhead Protection Project 25

**Narragansett Bay & Mt. Hope Bay**
00-10/SWT Seekonk Source Water Protection Project 44
01-07/SWT Swansea Source Water Protection Project 71

**Nashua**
00-03/SWT Rutland and Worcester Source Water Protection Project 37
00-16/WHP West Groton Wellhead Protection Project 64
01-07/WHP Dunstable Wellhead Protection Project 83
01-16/WHP Pepperell Wellhead Protection Project 92

**North**
99-07/SWT Crystal Lake Source Water Protection Project 7
01-03/SWT Lynn Source Water Protection Project 67
02-06/WHP Rockport Wellhead Protection Project 109

**Quinebaug/French**
99-01/SWT Cherry Valley and Rochdale Source Water Protection Project 1
99-22/WHP Dudley Wellhead Protection Project 32
01-03/WHP Bay Path VoTech Wellhead Protection Project 79
01-06/SWT Camp Wind-in-the-Pines Source Water Protection Project 70
02-15/WHP Sturbridge Wellhead Protection Project 117

**Shawsheen**
99-19/WHP Burlington Wellhead Protection Project 30

**South Coastal**
00-07/SWT First Herring Brook Source Water Protection Project 41
00-14/SWT Old Oaken Bucket Source Water Protection Project 48
00-03/WHP Saint Vincent's Wellhead Protection Project 51
99-04/SWT Aaron Reservoir & Lily Pond Source Water Protection Project 4
99-09/SWT Robbins Pond Source Water Protection Project 9
01-11/WHP Marshfield Wellhead Protection Project 87
00-11/SWT Canoe River Aquifer Source Water Protection Project 45

99-02/SWT Assawompsett Pond Source Water Protection Project 2
99-09/SWT Robbins Pond Source Water Protection Project 9
99-20/WHP Avon Wellhead Protection Project 31
02-02/WHP Bridgewater Wellhead Protection Project 105
02-04/SWT Bridgewater Source Water Protection Project 97

**Westfield**
00-04/SWT Granville Source Water Protection Project 38
00-05/SWT Austin Brook Reservoir Source Water Protection Project 39
99-05/SWT Granville Reservoir Source Water Protection Project 5
99-02/WHP Huntington Wellhead Protection Project 16
01-13/WHP Russell Wellhead Protection Project 89
01-05/SWT Westfield Source Water Protection Project 69
01-09/SWT West Springfield Source Water Protection Project 73
02-08/WHP Cummington Wellhead Protection Project 111
02-09/SWT Springfield Source Water Protection Project 102

**Statewide**
99-08/SWT School Source Water Protection Project 8
99-14/SWT Resource Planning for Cranberry Bogs within Water Supply Areas 14
01-12/SWT Agricultural Technical Assistance Project 76

# INTRODUCTION

This report presents Indicative Project Summaries of projects supported by the Source Water Protection Technical Assistance/Land Management Grant Program and by the Wellhead Protection Grant Program during federal fiscal years 1999 through 2002. Both programs were developed in support of the 1996 Safe Drinking Water Act Amendments and the Department's Source Water Assessment Program (SWAP). Funding is provided from the Drinking Water State Revolving Fund.

**Source Water Protection Technical Assistance/Land Management Grant Program**

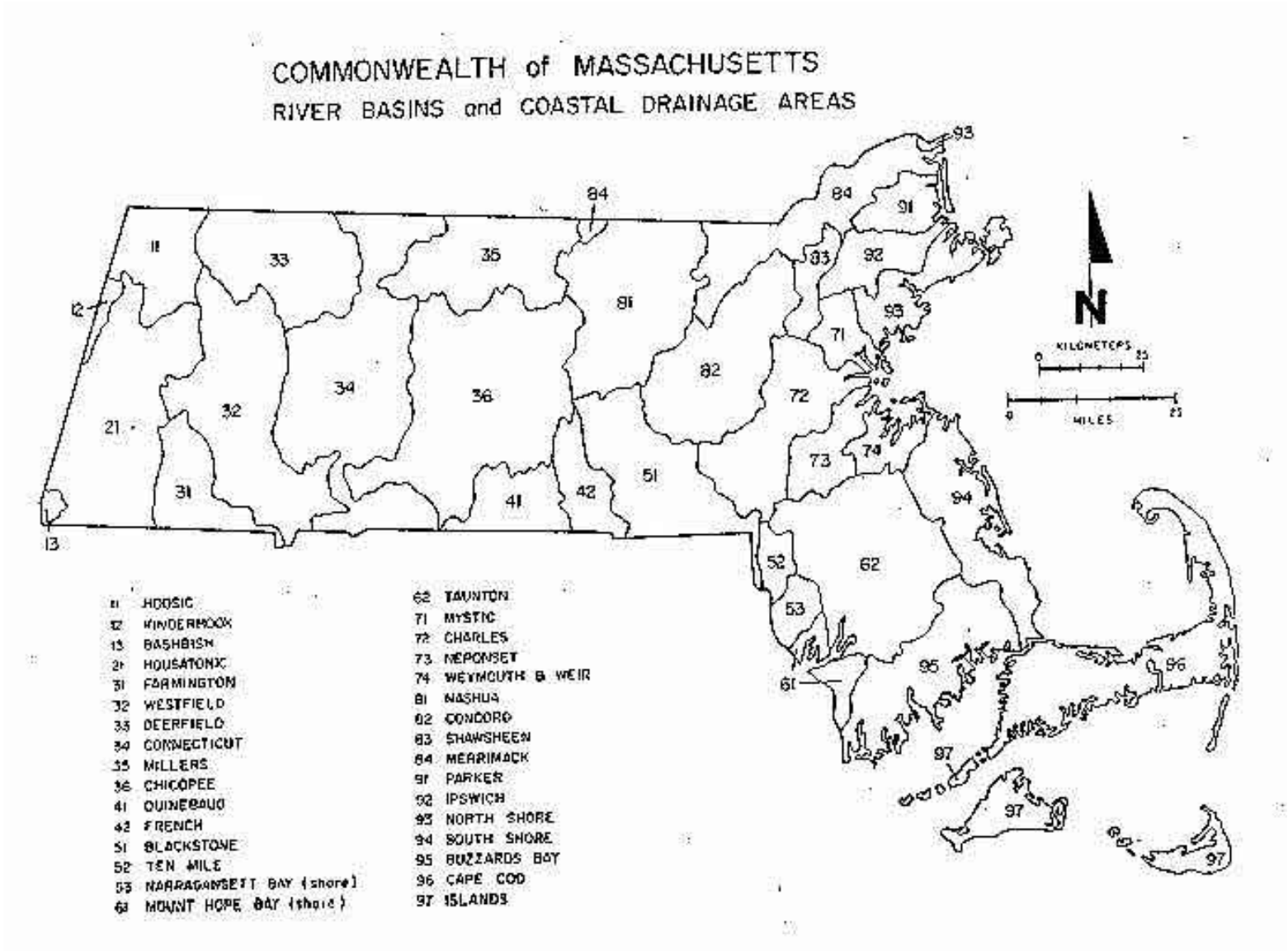
The purpose of the Source Water Protection Grant Program is to provide technical assistance to public drinking water suppliers through local and regional source protection efforts. Priority is given to projects that benefit public surface water supplies and systems that have both surface and groundwater sources; projects which address immediate threats in Zone A or Zone I; and projects which benefit public water supplies with an up-to-date, Department-approved, local Surface Water Supply Protection Plan.

Eligible activities for funding include prioritizing land for protection/control; planning riparian buffer zones; addressing management of existing protected lands; addressing public access issues; designing pesticide/chemical storage facilities; educating public officials, businesses, residents; coordinating/improving emergency response; developing a local Surface Water Supply Protection Plan; and other activities focusing on source protection. The proposed work must benefit active drinking water sources.

**Wellhead Protection Grant Program**

The Wellhead Protection Grant Program provides funding to public water systems for developing and implementing wellhead protection projects and plans. The direct recipients are public water suppliers; however, municipal boards, community groups, schools, and local and regional planning entities can develop and implement projects. All community public water systems (PWS) and non-transient non-community (NTNC) public water systems that serve schools are eligible to apply. The proposed work must benefit active drinking water sources. For public water supply wells with Department approved Zone IIs, funding is limited to projects in the Zone I and Zone II. For public water sources lacking Zone IIs, funding is limited to projects in the Zone I and Interim Wellhead Protection Area (IWPA). Educational and inspection programs are fundable activities if implemented on a town-wide basis.

The types of activities eligible for funding in the Zone I include removal or upgrade of USTs, septic systems, municipal public works garages, and salt/sand storage depots; posting wellhead protection signs around the Zone I; and containment and storage improvements. In the Zone II/IWPA (land must be owned or controlled by the water supplier or municipality) fundable activities include improvement and containment projects (e.g., secondary containment for liquid hazardous materials; salt/deicing and sand storage; municipal waste management; sealing floor drains; stormwater drainage improvements; hazardous materials storage; and other improvement/containment projects that will protect drinking water quality). Other fundable activities include developing local inspection programs for hazardous materials, floor drains and USTs; developing/updating local Wellhead Protection Plans, Water Supply Contingency Plans, and Emergency Response Plans; providing technical assistance to small businesses, industries, and farmers; funding a local staff person to conduct wellhead protection activities; creating or purchasing GIS data layers; developing databases, testing water quality, and other projects focusing on wellhead protection. Development of public outreach and educational programs such as working with schools to develop groundwater protection curriculum, producing local cable announcements; and developing and distributing drinking water protection information (such as BMPs) to agricultural, commercial, industrial and residential land owners are also fundable activities.


COMMONWEALTH of MASSACHUSETTS
RIVER BASINS and COASTAL DRAINAGE AREAS
N
KILOMETERS
MILES
11 HOOSIC
12 KINDERHOOK
13 BASHBISH
21 HOUSATONIC
31 FARMINGTON
32 WESTFIELD
33 DEERFIELD
34 CONNECTICUT
35 MILLERS
36 CHICOPEE
41 QUINEBAUG
42 FRENCH
51 BLACKSTONE
52 TEN MILE
53 NARRAGANSETT BAY (shore)
61 MOUNT HOPE BAY (shore)
62 TAUNTON
71 MYSTIC
72 CHARLES
73 NEPONSET
74 WEYMOUTH & WEIR
81 NASHUA
82 CONCORD
83 SHAWSHEEN
84 MERRIMACK
91 PARKER
92 IPSWICH
93 NORTH SHORE
94 SOUTH SHORE
95 BUZZARDS BAY
96 CAPE COD
97 ISLANDS

# SOURCE WATER PROTECTION GRANT PROJECTS 1999

## MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
## SOURCE WATER PROTECTION GRANT PROJECT 99-01/SWT

PROJECT TITLE: Cherry Valley & Rochdale Source Water Protection Project

INVESTIGATOR: Tata & Howard, Inc.

LOCATION: Quinebaug (French) River Basin

DESCRIPTION: This project will design BMPs to mitigate untreated stormwater runoff identified in the District's 1997 Non-Point Source Pollution Evaluation and in their Source Water Protection Plan. The proposed BMPs will increase runoff detention time to allow for the removal of silts and other materials through settling before release into Henshaw Pond, an important source of drinking water for the District. The proposed structures will include submerged intakes to reduce floating contaminants.

Specific tasks will include:

1. Design drainage improvements along Main Street (Route 9) to control untreated stormwater runoff. Design multi-staged outlet structure, discharge pipe, and emergency overflow and gate valve, sized for 2, 10, and 100-year storm events.

2. Design drainage improvements along Henshaw Street to control untreated stormwater runoff. Design multi-staged outlet structure, discharge pipe, and emergency overflow and gate valve, sized for 2, 10, and 100-year storm events.

3. Develop an Operation and Maintenance plan for BMPs.

4. Final Report to the Department.

COST: $54,200

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 99-02/SWT**

PROJECT TITLE: Assawompsett Pond Source Water Protection Project

INVESTIGATOR: Southeastern Regional Planning and Economic Development District

LOCATION: Taunton River Basin

DESCRIPTION: This project will develop a Surface Water Supply Protection Plan, including an Emergency Response component, to address resource management and protection issues for surface and ground waters within the Assawompsett Pond Complex watershed. The development and implementation of this protection plan will significantly enhance the protection of the watershed by identifying the sources and pathways of contamination and providing a strategy to reduce nonpoint source discharges to surface and groundwater.

Specific tasks will include:

1. Develop a Surface Water Supply Protection Plan, including an Emergency Response component. Plans will provide recommendations to each planning or environmental unit of each watershed community. GIS mapping to be conducted in coordination with MassGIS. Sampling plans must be developed in accordance with an approved QAPP.

2. Final Report to the Department.

COST: $73,260

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 99-03/SWT**

PROJECT TITLE: Lake Cochichewick Source Water Protection Project

INVESTIGATOR: Merrimack Valley Planning Commission

LOCATION: Merrimack River Basin

DESCRIPTION: This project will prioritize Lake Cochichewick watershed lands for acquisition, protection and control; improve municipal stormwater management; enhance local emergency response to chemical spills; and educate watershed residents, businesses, and others about BMPs to protect the lake's water quality from further degradation.

Specific tasks will include:

1. Convene an inter-departmental watershed advisory committee to provide ongoing input on the project tasks and to review project deliverables.
2. Develop detailed parcel-based GIS data to facilitate watershed protection planning and management, watershed land acquisition/protection, stormwater management, and hazardous materials spill response. Develop criteria to prioritize open space areas for acquisition or preservation.
3. Conduct one or two training sessions to educate municipal personnel in the use of the above watershed maps and associated data to enhance watershed protection planning and management. Emphasize prioritizing open space areas for acquisition or preservation and evaluate options for improving storm drainage system performance in protecting water quality.
4. Educate watershed residents, businesses, and others about practical non-structural BMPs they can employ to prevent or reduce pollution in the watershed. Develop brochures that will address the specific household and business practices cited in the Town's two watershed assessment reports and the Surface Water Supply Protection Plan.
5. Final Report to the Department.

COST: $31,750

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 99-04/SWT**

PROJECT TITLE: Aaron Reservoir & Lily Pond Source Water Protection Project

INVESTIGATOR: Norfolk Environmental, Inc.

LOCATION: South Coastal and Boston Harbor Watersheds

DESCRIPTION: This project will develop a Surface Water Supply Protection Plan to protect the Aaron River Reservoir and Lily Pond watersheds. Lily Pond is the only surface water supply for the Town of Cohasset and serves over 7,000 residents. The development and implementation of this protection plan will significantly enhance the protection of the Pond by providing full understanding of the sources and pathways of contamination, and a strategy to effectively prevent them from contaminating the water supply.

Specific tasks will include:

1. Develop a local Surface Water Supply Protection Plan for Aaron River Reservoir and Lily Pond.

2. Final Report to the Department.

COST: $44,960

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 99-05/SWT**

PROJECT TITLE: Granville Reservoir Source Water Protection Project

INVESTIGATOR: Pioneer Valley Planning Commission

LOCATION: Westfield River Basin

DESCRIPTION: This project will develop a Surface Water Supply Protection Plan for the Granville Reservoir, which provides approximately 60% of the water requirements for Westfield. As development encroaches on crucial areas in the watershed, a completed plan will provide guidance and implementation tools for the Town of Granville to use in protecting its water supply.

Specific tasks will include:

1. Develop a local Surface Water Supply Protection Plan for the Granville Reservoir.

2. Develop an educational program for Granville Reservoir and its watershed.

3. Final Report to the Department.

COST: $35,000

FUNDING: $30,000 by the U.S. Environmental Protection Agency
$ 5,000 by the Pioneer Valley Planning Commission

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 99-06/SWT**

PROJECT TITLE: Business Partnership Development for Cambridge Watershed Protection

INVESTIGATOR: Charles River Watershed Association

LOCATION: Charles River Basin

DESCRIPTION: The project will inventory existing stormwater structures, quantify the amount of impervious area on the business properties in the Waltham portion of the Hobbs Brook and Stony Brook subwatersheds, and develop a draft approach for communication and education efforts. Land use in the area is predominately commercial and industrial, with stormwater for these sites ultimately discharging to the Cambridge Reservoir. Project activities include: developing a business spatial database, updating building spatial data, creating storm drainage data, refining the watershed boundary, and developing a draft approach for communication and education efforts.

Specific tasks will include:

1. Develop a business spatial database (including impervious surfaces on the business properties), update building spatial data, create storm drainage spatial data, and refine the watershed boundary.

2. Develop a draft approach for a communication and education program to raise awareness of the resource, describe threats to the drinking water source, and identify stormwater pollution prevention measures that could be inexpensively applied by area businesses.

3. Final Report to the Department.

COST: $24,999

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 99-07/SWT**

PROJECT TITLE: Crystal Lake Source Water Protection Project
INVESTIGATOR: Tetra Tech EM
LOCATION: North Coastal Watershed

DESCRIPTION: This project will develop a management plan to address potential contaminant sources to Crystal Lake in the Town of Wakefield. These threats include stormwater runoff, overflow from sanitary sewers, potential spills along the neighboring railroad track and roads, and leaking USTs. This project will focus on the characterization and management of stormwater inflow and sanitary sewer outflow entering the Lake.

Specific tasks will include:

1. Conduct a survey of stormwater drainage system and sanitary sewer pump stations to supplement existing data sources to update the source water assessment. Identify flow paths for sanitary sewer overflow events. Delineate and map the stormwater system, stormwater drainage areas, land use, and sewer overflow.
2. Incorporate stormwater management, sewer overflow prevention, and contingency planning information into a local Surface Water Supply Protection Plan. Evaluate risks associated with each stormwater catch basin and develop a priority list for a plan of action. Estimate contaminant loading using a land use based stormwater-loading model. On the basis of associated risk and stormwater flow characteristics, develop a stormwater management plan that recommends BMPs. Develop a contingency plan to address the sanitary sewer overflow problems associated with the nearby pump stations.
3. Conduct up to four outreach workshops for local residents and businesses. Distribute educational materials to potential contributors of contaminants through the stormwater drainage system. Facilitate up to two inter-agency meetings to discuss issues and a potential course of action to prevent future sanitary sewer overflow problems.
4. Final Report to the Department.

COST: $40,000
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 99-08/SWT**

PROJECT TITLE: School Source Water Protection Project
INVESTIGATOR: NEIWPCC
LOCATION: Statewide Massachusetts
DESCRIPTION: In consultation with Massachusetts Office of Technical Assistance for Toxics Use Reduction (OTA), the contractor will conduct a walk-through audit and implement source water protection activities for a school that is public water supplier, and develop and present a curriculum and guide to promote the protection of drinking water sources at high schools that are public water supply systems. At least 130 Commonwealth schools use groundwater from their own property at their primary supply. Many are at risk of contributing uncontrolled discharges into the same water supply area. Septic systems, heating oil storage tanks, parking lots, playing fields, and schools buildings themselves are often located in a well's Zone I area. This project will select a high school with potential contaminant sources located in the Zone I or IWPA.

Specific tasks will include:

1. Select a school in coordination with the Department and with the Department's SWAP program.
2. Conduct in-depth audits and inventory potential contaminant sources. Provide recommendations to reduce or eliminate inventoried threats to water supplies and assist in their implementation, incorporate water education in the curriculum, and educate school management on the both the practicality of and the responsibility for addressing this protection opportunity.
3. In consultation with OTA, develop a curriculum and guide to promote the protection of drinking water sources at high schools that are public water supply systems. Curriculum to include tutorials on: 1) the Water Cycle, groundwater, hydrogeology, nonpoint & point source pollution, and wellhead protection strategies, 2) Delineation and mapping of source and protection areas, 3) Source water assessment activities, 4) development of a recommendations report based on inventoried results, and 5) presentation of findings to the school administration.
4. Present the Department approved curriculum and guide to the Teachers Association meeting.
5. Final Report to the Department.

COST: $24,597
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 99-09/SWT**

PROJECT TITLE: Robbins Pond Source Water Protection Project

INVESTIGATOR: Old Colony Planning Council

LOCATION: Taunton River and South Coastal Watersheds

DESCRIPTION: This project will develop a Surface Water Supply Protection Plan for the Robbins Pond Subwatershed. The focus will be Monponsett Pond, a drinking water source for the City of Brockton, and the Towns of Hanson and Halifax. The development and implementation of a Protection Plan will significantly enhance the protection of Monponsett Pond by providing full understanding of the sources and pathways of contamination, and a strategy to effectively prevent contamination of the water supply. Surface water sampling will measure water quality and identify possible non-point sources of pollution. This project will also identify surface flow into the pond in an effort to address the issue of water elevations and dam management, provide up to three public meetings to provide outreach and education for the community, and develop comprehensive multi-town recommendations.

Specific tasks will include:

1. Develop a Surface Water Supply Protection Plan for Monponsett Pond.

2. Develop educational program for the subwatershed.

3. Final Report to the Department.

COST: $44,750

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 99-10/SWT**

PROJECT TITLE: Running Gutter Reservoir Source Water Protection Project

INVESTIGATOR: Hatfield Conservation Commission

LOCATION: Connecticut River Basin

DESCRIPTION: This project will develop a Surface Water Supply Protection Plan for the Running Gutter Reservoir, currently providing approximately 60% to 100% of the Town of Hatfield's water requirements. As development encroaches on crucial areas for this water supply, a completed plan will provide guidance and implementation tools for the Town to use in protecting its water supply.

Specific tasks will include:

1. Develop a Source Water Supply Protection Plan for the Running Gutter Reservoir.

2. Develop an educational program for the reservoir's watershed.

3. Final Report to the Department.

COST: $30,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 99-11/SWT**

PROJECT TITLE: Palmer Source Water Protection Project

INVESTIGATOR: Tighe & Bond, Inc.

LOCATION: Chicopee River Basin

DESCRIPTION: This project will develop a Surface Water Supply Protection Plan for the Water District No. 1 and Palmer Fire District No. 1. The Upper and Lower Reservoirs are interconnected and represent the primary source of water for the District. The other water supply sources (groundwater) are currently threatened by a gasoline release. This project will develop a completed protection plan that will provide guidance and implementation tools for use in protecting its water supply.

Specific tasks will include:

1. Develop a Source Water Protection Plan for Palmer's Upper and Lower Reservoirs.

2. Final Report to the Department.

COST: $8,800

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 99-12/SWT**

PROJECT TITLE: Haverhill Watershed Management Plan Implementation

INVESTIGATOR: Merrimack River Watershed Council

LOCATION: Merrimack River Basin

DESCRIPTION: This project will assist with implementation of the Town of Haverhill's new Watershed Protection Plan. Implementation will incorporate a recent analysis of current conditions and potential threats to the water supply.

Specific tasks will include:

1. Conduct outreach focusing on the Watershed Management Plan implementation and monitoring initiative. Identify stakeholders, inform them of the Plan, and invite their participation.
2. Organize informational meetings and watershed associations. Conduct information sessions that provide an overview of the Protection Plan, water supply protection issues, and the inventory and monitoring program.
3. Conduct watershed inventory training, focusing on locating existing and potential threats to the water supply.
4. Inventory and map the watershed in coordination with MassGIS.
5. Facilitate planning meetings with each watershed association to discuss the findings of the water quality monitoring and watershed inventories. Propose recommendations for community action and necessary modifications to sampling site locations. Formalize watershed associations and help them get up and running.
6. Compile the watershed inventory summary, water quality data, maps, and action plans with recommendations for community action and continued monitoring for each watershed association. Present the findings and recommendations to local officials and the community at large.
7. Final Report to the Department.

COST: $80,455
FUNDING: $34,630 by the U.S. Environmental Protection Agency
$45,825 by the Merrimack River Watershed Council
DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 99-13/SWT**

PROJECT TITLE: Roaring Brook Reservoir Source Water Protection Project

INVESTIGATOR: Tighe & Bond, Inc.

LOCATION: Connecticut River Basin

DESCRIPTION: This project will develop a Surface Water Supply Protection Plan to provide guidance and implementation tools for the South Deerfield Water Supply District. The Roaring Brook Reservoir System, comprising the Roaring Brook and Conway Reservoirs, represents the primary source of water for the District. Under normal conditions, it is the only source of water because of identified contamination of the wellfield. This project will be conducted in concert with the Department's SWAP program, and will incorporate an educational program that targets residents, public officials, community groups, businesses, agricultural entities, and others.

Specific tasks will include:

1. Develop a Source Water Protection Plan for the Roaring Brook Reservoir.

2. Final Report to the Department.

COST: $18,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2001

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 99-14/SWT**

PROJECT TITLE: Resource Planning for Cranberry Bogs within Drinking Water Supply Areas

INVESTIGATOR: Cape Cod Cranberry Growers' Association

LOCATION: Statewide

DESCRIPTION: This project will provide direct technical assistance with farm planning to cranberry growers in the Cape Cod, Buzzards Bay, Taunton, South Coastal, and Nantucket Basins in an effort to conserve and protect water resources. Resource planning for cranberry bogs located within or adjacent to public drinking water supply areas will provide cranberry growers with the information necessary for the protection of public surface and groundwater drinking water supplies in Southeastern Massachusetts.

Specific tasks will include:

1. Determine whether cranberry bogs located in Zone IIs, Bs, Cs, and IWPAs have a Natural Resource Conservation Service approved conservation farm plan and/or need an updated conservation farm plan. Survey the cranberry growers and evaluate existing data to support that effort. These determinations will be conducted for the entire cranberry-growing region: Buzzards Bay, South Coastal, Taunton River, Cape Cod, and Nantucket drainage basins. Prioritize specific areas of the growing region for education and outreach.

2. Provide technical assistance with conservation farm planning for cranberry bogs located in Zone IIs, Bs, Cs, and IWPAs, and complete between 15 and 30 comprehensive conservation farm plans. Conservation farm planning will focus first on cranberry properties in Zone IIs, Bs, Cs, and IWPAs located in Middleborough, Lakeville, Rochester, and Mattapoisett and as prioritized in Task 1. Farm plans will recommend BMPs that protect water quality, prevent soil erosion, and manage nutrient and pesticide use.

COST: $30,000
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2000-2002

## WELLHEAD PROTECTION GRANT PROJECTS 1999

### MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
### WELLHEAD PROTECTION GRANT PROJECT 99-01/WHP

PROJECT TITLE: Brewster Wellhead Protection Project

INVESTIGATOR: Town of Brewster

LOCATION: Cape Cod

DESCRIPTION: This project will install security fencing to protect the town's wells #1 and #2 from vandalism and entrance by unauthorized persons or animals. These two wells are located in a wooded area close to recreation areas and accessible by road. New fencing will prevent access to the Zone I area and will provide additional security to the pump station and wells.

Specific tasks will include:

1. Purchase and install 585 linear feet of at least eight-foot high chain link fence and gates to protect the wells #1 and #2 in Brewster.

2. Final Report to the Department.

COST: $16,300

FUNDING: $15,400 by the U.S. Environmental Protection Agency
$ 900 by the Town of Brewster

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-02/WHP**

PROJECT TITLE: Huntington Wellhead Protection Project

INVESTIGATOR: Town of Huntington

LOCATION: Westfield River Basin

DESCRIPTION: This project will develop a Wellhead Protection Plan and construct a new storage facility for water treatment chemicals in the Zone I of wells #1 and #2. Relocating and upgrading the storage facility will ensure that liquid chemicals cannot contaminate the nearby wells in the event of a spill. Development of a Wellhead Protection Plan will also include an Emergency Response component for potential or accidental spills on nearby state Route 20 and an adjacent railroad line.

Specific tasks will include:

1. Construct a new storage facility for water treatment chemicals.
2. Construct of a new gate to restrict access to the wellhead area.
3. Purchase and install ten wellhead protection signs around the wellhead protection area.
4. Develop Wellhead Protection Plan.
5. Final Report to the Department.

COST: $33,950

FUNDING: $30,950 by the U.S. Environmental Protection Agency
$ 3,000 by the Town of Huntington

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-03/WHP**

PROJECT TITLE: Douglas Wellhead Protection Project

INVESTIGATOR: Town of Douglas

LOCATION: Blackstone River Basin

DESCRIPTION: This project will install and/or upgrade fencing around the Zone I areas and will install an asphalt berm to reduce stormwater runoff from washing into the well field. New fencing will prevent vehicles from gaining access to the Glen Street and West Street well fields and will provide additional security to the pump stations. The berm will reduce the threat of contaminants by directing runoff into an existing catch basin.

Specific tasks will include:

1. Purchase and install and/or modify 794 feet of fencing and gates around Zone I access locations for the Glen Street and West Street well fields.

2. Purchase and install 600 feet of 12 inch modified stormwater runoff asphalt berm to direct street runoff away from the West Street Well Field into an existing catch basin

3. Final Report to the Department.

COST: $28,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-04/WHP**

PROJECT TITLE: Bellingham Wellhead Protection Project

INVESTIGATOR: Town of Bellingham

LOCATION: Blackstone River Basin

DESCRIPTION: This project will relocate subsurface wastewater disposal to outside of the Zone I for Well #3. The long-term water quality of this source is threatened by a septic system located within 200 feet of the pump station and well. This septic system will be properly abandoned and a new system will be constructed outside of the Zone I.

Specific tasks will include:

1. Purchase and install a new subsurface sewage disposal system.

2. Properly abandon the old septic system.

3. Final Report to the Department.

COST: $29,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-05/WHP**

PROJECT TITLE: Warren Wellhead Protection Project

INVESTIGATOR: Warren Water District

LOCATION: Chicopee River Basin

DESCRIPTION: This project will upgrade a fuel storage tank located in Zone I. The upgrade will include an appropriate secondary containment structure. The project will also develop Wellhead Protection and Emergency Response Plans, and install additional fencing around Zone I access locations.

Specific tasks will include:

1. Replace the old fuel storage tank in Zone I with a new, upgraded tank placed in an appropriate secondary containment structure.

2. Develop Wellhead Protection and Emergency Response Plans.

3. Purchase and install 1,300 linear feet of fencing around Zone I access locations. Fence to limit access from the adjacent Comins Pond swimming area and from stray motorists.

4. Final Report to the Department.

COST: $28,500

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-07/WHP**

PROJECT TITLE: Ashfield Wellhead Protection Project

INVESTIGATOR: Ashfield Water District

LOCATION: Deerfield River Basin

DESCRIPTION: This project will install an insulated shelter for the wellhead, and concrete posts (or similar barrier) to protect the District's only drinking water source from an adjacent road. Installation of lightning protection also will help protect the town water supply from lightning strikes that have interrupted service twice in the past two years.

Specific tasks will include:

1. Purchase and installation of a wellhead shelter.
2. Purchase and installation of wellhead barriers around Zone I access locations.
3. Purchase and installation of lightning arresters.
4. Final Report to the Department.

COST: $17,900

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-09/WHP**

PROJECT TITLE: Auburn Wellhead Protection Project

INVESTIGATOR: Auburn Water District

LOCATION: Blackstone River Basin

DESCRIPTION: This project will augment Auburn Water District's Emergency Response Plans to address hazardous material spills, it will compile drainage maps of roads near wells, identify potential contamination migration pathways, educate local officials, and conduct stormwater sampling. Given the proximity of the District's most productive drinking water wells to the Massachusetts Turnpike, Route I-290, and Route 12, a master drainage plan will be a vital component of wellhead protection planning. Although road salt has compromised the water quality of the wells, potential releases of oil or hazardous materials on these major roadways represents a threat that could result in long term or permanent loss of these valuable sources of drinking water.

Specific tasks will include:

1. Compile drainage maps of major roadways near wells #1-3. Research existing drainage plans for the area highways and roads. Conduct field verification of drainage structures, confirmation of flow directions, and locations of discharge.

2. Prepare drainage maps for identification of potential contamination migration pathways.

3. Educate local authorities and organizations to ensure the effective use of the drainage plan, especially for first responders in an emergency.

4. Develop an EPA approved QAPP, and conduct sampling.

5. Final Report to the Department.

COST: $46,800
FUNDING: $45,000 by the U.S. Environmental Protection Agency
$ 1,800 by the Auburn Water District
DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-10/WHP**

PROJECT TITLE: Shelburne Falls Wellhead Protection Project

INVESTIGATOR: Shelburne Falls Fire District

LOCATION: Deerfield River Basin

DESCRIPTION: This project is designed to help protect the water supply through public education and proposed wellhead protection bylaws and regulations. The Shelburne Falls Fire District will work with area governments and schools to raise the awareness of the potential for contamination and for the need to establish Board of Health regulations and town by-laws to protect water sources. Historically close votes in the Town of Colrain have failed to pass such bylaws; however, with the support of a major education campaign, educated consumers may take the necessary steps to assure the safety and protection of District water sources. This project will also update an out-of-date land-use survey and emergency response plan.

Specific tasks will include:

1. Develop source protection and water conservation educational and outreach program for the three District communities, Shelburne, Buckland, and Colrain. Establish a Wellhead Protection Committee consisting of stakeholders from the District and surrounding towns.

2. Conduct a land-use survey, and evaluate and rank potential sources of groundwater contamination.

3. Update the emergency protection plan.

4. Educate and offer support for BOH initiative that would protect ground and surface waters.

5. Final Report to the Department.

COST: $33,900
FUNDING: $25,000 by the U.S. Environmental Protection Agency
$ 8,900 by the Shelburne Falls Fire District
DURATION: 2000-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-11/WHP**

PROJECT TITLE: Franklin Wellhead Protection Project
INVESTIGATOR: Town of Franklin
LOCATION: Charles River Basin

DESCRIPTION: This project will assess stormwater recharge for water supply zones of contribution for the Town of Franklin. This project will map the relative recharge capabilities of lands within Zones I, II, and III, and assess the relative risk to groundwater quality associated with the potential active recharge of stormwater on these lands. An inventory of stormwater discharges within Zones II and III will be compiled.

Specific tasks will include:

1. Establish a Hydraulic Recharge rating protocol. Qualitatively rate existing hydraulic recharge capacity based on topography, soil type, seasonal high groundwater levels, and land cover. Topography, soil type, and seasonal high ground water information will be obtained from NRCS, Charles River Watershed Association, MassGIS data, and other sources.
2. Establish a Risk of Stormwater Recharge rating protocol. Qualitatively rate the relative risks of stormwater recharge based on Zone classifications, expected stormwater quality (based on land cover), 21E sites, and other environmental considerations.
3. Complete protocols developed in Tasks 1 and 2, and a protocol summary report, and facilitate a review that details how each parameter was rated.
4. Apply the Department approved Hydraulic Recharge rating protocol. Present the data in GIS and spreadsheet format.
5. Apply the Department approved Risk of Stormwater Recharge rating protocol. Present the data in GIS and spreadsheet format.
6. Identify Zone II and III stormwater discharge points and produce a GIS map that identifies stormwater discharges within Zones II and III, and highlights existing high-risk recharge.
7. Final Report to the Department.

COST: $53,755
FUNDING: $45,000 by the U.S. Environmental Protection Agency
$ 8,755 by the Town of Franklin
DURATION: 2000-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-12/WHP**

PROJECT TITLE: Griswoldville Wellhead Protection Project

INVESTIGATOR: Griswoldville Water District

LOCATION: Deerfield River Basin

DESCRIPTION: This project will install watertight/flood tight manhole covers in the IWPA. It will also install a chain-link fence and wellhead protection signs, and issue public service announcements for consumers and local town officials on the need to protect to protect the District's well.

Specific tasks will include:

1. Purchase and install 852 feet of fencing and gates to protect the Zone 1 area from stray motorists.

2. Purchase and install twenty-six watertight and flood tight manhole covers in the IWPA.

3. Purchase and install twelve aquifer protection signs on roads and public-ways within the IWPA.

4. Develop and distribute public service announcements for consumers and local town officials on the need to protect the District's well.

5. Final Report to the Department.

COST: $45,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-14/WHP**

PROJECT TITLE: Templeton Wellhead Protection Project

INVESTIGATOR: Town of Templeton

LOCATION: Millers River Basin

DESCRIPTION: This project will install fencing, gates, and protection signs around the Zone I area of two of Town of Templeton's four wells. New fencing will prevent vehicles from gaining access to the Otter River and the Sawyer Street wells, and will provide additional security to the pump station.

Specific tasks will include:

1. Purchase and install 2,370 feet of chain link fence around Zone I access locations. Survey or determine the circumference of the Zone Is (200' radius), and clear approximately ten feet of brush along the circumferences.

2. Purchase and install 50-wellhead protection signs indicating the Zone I areas. Permanent double-sided signs will be installed on all roads and public ways adjacent to the wellfields, indicating to motorists that they are entering or leaving the wellhead protection area.

3. Final Report to the Department.

COST: $34,900

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-15/WHP**

PROJECT TITLE: Stoughton Wellhead Protection Project

INVESTIGATOR: Town of Stoughton

LOCATION: Boston Harbor Watershed

DESCRIPTION: One of Town of Stoughton's largest water supplies is also closest to the industrial area of the town and may be threatened by contaminated groundwater. Numerous monitoring wells have already been installed in the area where possible sources of contamination may exist. This project will expand the monitoring program through the installation of additional monitoring wells to better understand the groundwater flow and to better evaluate the risk of the well becoming contaminated.

Specific tasks will include:

1. Develop an EPA approved QAPP and conduct sampling.

2. Install four to eight additional monitoring wells in Zones I and II to expand existing groundwater quality monitoring program.

3. Final Report to the Department.

COST: $51,900

FUNDING: $45,000 by the U.S. Environmental Protection Agency
$ 6,900 by the Town of Stoughton

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-16/WHP**

PROJECT TITLE: Gilbertville Wellhead Protection Project

INVESTIGATOR: Gilbertville Water District

LOCATION: Chicopee River Basin

DESCRIPTION: This project will implement wellhead protection, reduce the risk of aquifer contamination, and develop a Wellhead Protection Plan and an Emergency Response Plan. Installation of a new fence and gate will prevent unauthorized access to the Zone I area.

Specific tasks will include:

1. Develop a Wellhead Protection Plan and an Emergency Response Plan.

2. Purchase and install 490 feet of fencing to restrict access to the Zone I area.

3. Final Report to the Department.

COST: $25,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-17/WHP**

PROJECT TITLE: Cool Sandy Beach Wellhead Protection Project

INVESTIGATOR: Cool Sandy Beach Community Water System

LOCATION: Chicopee River Basin

DESCRIPTION: This project will develop a Wellhead Protection Plan and help address the threat of on-site wastewater treatment systems located within the Zone I and IWPA. This project also will identify and map potential sources of pollution in the Zone I and IWPA, develop an EPA approved QAPP for sampling, sample in accordance with the QAPP, conduct a nitrogen loading analysis, and complete a wastewater management study to evaluate wastewater management options.

Specific tasks will include:

1. Identify potential sources of pollution in the Zone I and IWPA. Locate and map septic systems, cesspools, and tight tanks within the Zone I and IWPA, and conduct an on-site survey for potential contaminants.
2. Develop an EPA approved QAPP.
3. Sample to determine groundwater quality and conduct nitrogen-loading analysis to determine septage impacts and whether well is under the influence of surface water.
4. Complete an ongoing wastewater management study that will evaluate wastewater treatment alternatives. The study will include recommendations and cost estimates for alternative systems for individual homeowners and for the community at large.
5. Develop Wellhead Protection Plan. Efforts will include coordination with the neighboring Towns of Rutland and Paxton.
6. Final Report to the Department.

COST: $19,720

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-18/WHP**

PROJECT TITLE: Erving Wellhead Protection Project

INVESTIGATOR: Town of Erving

LOCATION: Connecticut River Basin

DESCRIPTION: This project will develop a Wellhead Protection Plan and an Emergency Response Plan, install four additional monitoring wells to track previously identified potential contamination sources, develop a database for groundwater monitoring program, and develop a Wellhead Protection Plan and an Emergency Response Plan to protect western Erving's only groundwater well.

Specific tasks will include:

1. Develop an EPA approved QAPP and conduct sampling.
2. Install four additional monitoring wells.
3. Develop a database for groundwater monitoring program.
4. Develop a Wellhead Protection Plan and an Emergency Response Plan.
5. Final Report to the Department.

COST: $25,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-19/WHP**

PROJECT TITLE: Burlington Wellhead Protection Project

INVESTIGATOR: Town of Burlington

LOCATION: Shawsheen River Basin

DESCRIPTION: This project will use 21 existing monitoring wells to implement a local water quality sampling and analysis program to ensure that the drinking water is safe by the early detection of groundwater contamination in the Zone IIs. Monitoring activities will be used to identify problem areas so that pumping of the well field can be optimized to mitigate the potential of contaminant migration within the aquifer to the water supply wells, as well as identify any areas that may require response abatement measures.

Specific tasks will include:

1. Develop an EPA approved QAPP.

2. Implement sampling and assessment.

3. Final Report to the Department.

COST: $138,000

FUNDING: $45,000 by the U.S. Environmental Protection Agency
$93,000 by the Town of Burlington

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-20/WHP**

PROJECT TITLE: Avon Wellhead Protection Project

INVESTIGATOR: Town of Avon

LOCATION: Taunton River Basin

DESCRIPTION: This project will install a fence to restrict access to the Trout Brook where it flows through a commercial area. This area of the brook is in the Zone II and is immediately upstream of four of the Town's five wells. Illegal disposal of oil, gas, and other contaminants has occurred in the project area. Installation of a fence will discourage illegal disposal of hazardous materials within the Zone II and the Watershed Protection District.

Specific tasks will include:

1. Purchase and install 1,000 feet of fencing along Zone II access locations.

2. Final Report to the Department.

COST: $21,000

FUNDING: $16,000 by the U.S. Environmental Protection Agency
$ 5,000 by the Town of Avon

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-22/WHP**

PROJECT TITLE: Dudley Wellhead Protection Project

INVESTIGATOR: Town of Dudley

LOCATION: Quinebaug River Basin

DESCRIPTION: This project will install seven wells for monitoring MTBE and VOCs for the Town of Dudley. Two of the Town's three drinking water wells, providing approximately 65% of the system's water, are threatened by groundwater contamination. Sampling in 1999 indicated low levels of VOCs at the wells and within the Zone I areas. The Town intends to conduct further field investigations, water quality analyses, and computer modeling to determine the possible extent of the contamination.

Specific tasks will include:

1. Develop an EPA approved QAPP and conduct sampling.

2. Install seven monitoring wells in Zones I and II to expand the existing groundwater quality monitoring program.

3. Develop new or select an existing computer model to be used in the further investigation into the potential source of the contamination and the extent of the plume, and to estimate the potential impact from the contamination of the production well.

4. Final Report to the Department.

COST: $47,000

FUNDING: $45,000 by the U.S. Environmental Protection Agency
$ 2,000 by the Town of Dudley

DURATION: 2000-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-23/WHP**

PROJECT TITLE: Ashland Wellhead Protection Project

INVESTIGATOR: Town of Ashland

LOCATION: Concord River Basin

DESCRIPTION: This project will develop an inspection program to locate floor drains, holding tanks, and commercial and industrial hazardous materials storage in an effort to protect the existing water supply and future sites that may be used for the Town of Ashland's water supply. This project will catalog potential sources of contamination and provide up-to-date information on hazardous materials that could affect the aquifer and/or water protection areas given a spill or release.

Specific tasks will include:

1. Develop a Board of Health floor drain regulation and plan for its implementation.

2. Develop a town-wide inspection program to locate floor drains, holding tanks, commercial and industrial hazardous materials storage.

3. Develop a base map, a database for hazardous materials use/storage for local planning, and perform site inspections.

4. Final Report to the Department.

COST: $25,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 99-24/WHP**

PROJECT TITLE: Wareham Wellhead Protection Project

INVESTIGATOR: Wareham Fire District

LOCATION: Buzzards Bay, SERO

DESCRIPTION: This project will install approximately six groundwater monitoring wells in the Zones I and II for two of Wareham Fire District's wellfields. Samples will be collected and analyzed for potential contamination from herbicides, pesticides, fertilizers, and priority pollutant metals associated with adjacent cranberry bog activities. The monitoring wells and sampling program will provide the District with the capability of monitoring potential contaminants to the public water supply and, if detected, provide early warning to allow the District to modify their pumping regime and initiate remediation measures.

Specific tasks will include:

1. Develop an EPA approved QAPP and perform sampling.

2. Install monitoring wells in Zone I and Zone II.

3. Final Report to the Department.

COST: $44,900

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2000-2002

## SOURCE WATER PROTECTION GRANT PROJECTS 2000

### MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
### SOURCE WATER PROTECTION GRANT PROJECT 00-01/SWT

PROJECT TITLE: Lake Cochichewick Source Water Protection Project-Phase II

INVESTIGATOR: Merrimack Valley Planning Commission

LOCATION: Merrimack River Basin, NERO

DESCRIPTION: This project will develop a comprehensive Hazardous Materials Response Plan for the Lake Cochichewick watershed. The Lake is bordered by an airport and several busy roads leaving the town's water supply vulnerable to pollution from accidental spills. An effective response plan will significantly improve the Town of North Andover's capability to prepare for and respond to emergencies in a timely and coordinated manner.

Specific tasks will include:

1. Expand and re-convene the inter-municipal Watershed Advisory Committee to provide input on project tasks and review project deliverables. The committee will be comprised of North Andover DPW, Water Treatment Plant, Conservation, Planning and Health personnel, a representative from neighboring Boxford, and area emergency response personnel.
2. Inventory, evaluate, and map all major hazardous materials risk sites and transport routes in the watershed. Site investigations will be conducted in N. Andover and Boxford to verify current and collect new information, and update GIS data layers.
3. Develop a comprehensive Hazardous Materials Emergency Preparedness and Response Plan for the watershed, for use as an immediate action guide during hazardous materials emergencies.
4. Submit Final Report to the Department.

COST: $43,600

FUNDING: $38,600 by the U.S. Environmental Protection Agency
$ 5,000 by the Merrimack Valley Planning Commission

DURATION: 2001-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 00-02/SWT**

PROJECT TITLE: Powow River Source Water Protection Project
INVESTIGATOR: Higgins Environmental Associates, Inc.
LOCATION: Merrimack Basin, NERO

DESCRIPTION: This project will develop a comprehensive Surface Water Supply Protection Plan for the Powow River Watershed; educate residents, public officials, stakeholders; update the Emergency Response Plan; conduct two emergency drills; establish a multi-town committee; and, prioritize watershed land for acquisition or preservation.

Specific tasks will include:

1. Develop a comprehensive Surface Water Supply Protection Plan for the Powow River Watershed. Include the current Zones A, B, and C for the Powow River intake, the Zone I and IWPA for Amesbury's two water supply wells, and an extension of the Zones A, B, C to areas downstream of the surface water supply intake as delineated on the Water Resources Protection District Overlay Map. Conduct municipal and public meetings to educate stakeholders on the Plan, its function and importance.
2. Update the Town of Amesbury's Emergency Response Plan.
3. Plan and conduct two emergency response drills to familiarize water plant and other municipal employees with updated emergency response procedures developed in Task 2.
4. Prioritize open space areas for acquisition or preservation. Develop prioritization criteria and prioritize land within: 1) the Zone A between the intake and Tuxbury Pond Dam, 2) larger lots (the larger the lot the more significant its importance) within the Zone B from the intake to the New Hampshire state line, and 3) land areas highly sensitive to development for water supply protection and control. Generate base maps.
5. Establish a multi-town watershed advisory committee to collaborate on watershed issues. The committee will be comprised of representatives from the watershed communities of Amesbury and Merrimac, Massachusetts and Danville, E. Kingston, Kingston, Newton, and S. Hampton, New Hampshire.
6. Submit Final Report to the Department.

COST: $31,410
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2001-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 00-03/SWT**

PROJECT TITLE: Rutland and Worcester Source Water Protection Project

INVESTIGATOR: Massachusetts Watershed Coalition

LOCATION: Blackstone/Nashua/Chicopee Basins, CERO

DESCRIPTION: This project will provide source protection planning for the City of Worcester and Town of Rutland. Given common needs and overlapping drinking water supplies, both communities are interested in working together with all watershed stakeholders to strengthen watershed protection and optimize available resources.

Specific tasks will include:

1. Coordinate watershed protection planning between the City of Worcester and Town of Rutland.
2. Develop a comprehensive Surface Water Supply Protection Plan for eleven drinking water reservoirs' watersheds (Lynde Brook Reservoir, Kettle Brook Reservoir 1-4, Holden Reservoir 1 and 2, Kendall Reservoir, Pine Hill Reservoir, and Quinapoxet Reservoir for the City of Worcester; and Muschopauge Pond for Rutland).
3. Develop a Forest Management Plan for Rutland's town-owned watershed lands in accordance with DEM guidelines.
4. Assess potential stormwater problems. Design a BMP for catch basins that discharge untreated stormwater into an intermittent stream that flows directly into Rutland's water supply.
5. Identify and prioritize land for aquifer protection for the City of Worcester. Develop criteria to prioritize open space areas for acquisition or preservation, integrate criteria into computer model, and generate detailed GIS base maps to facilitate watershed land acquisition and protection.
6. Develop a landowner outreach and conservation toolbox for Worcester, including a conservation restriction program. Train officials and landowners on conservation options and toolbox.
7. Develop a multi-town cooperative agreement for purchasing supplies, materials, etc. in bulk for cost savings.
8. Submit Final Report to the Department.

COST: 39,000
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2001-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 00-04/SWT**

PROJECT TITLE: Granville Source Water Protection Project

INVESTIGATOR: Town of Granville 61A Committee

LOCATION: Westfield Basin, WERO

DESCRIPTION: This project will conduct a Household Hazardous Waste and Hard to Dispose of Materials Collection (HHW/HDMC), update the Town of Granville's Open Space Plan, and coordinate area aquifer protection efforts. An updated Open Space Plan and the coordination of protection efforts will permit the Massachusetts communities of Granville, Springfield, and Westfield, and the Connecticut Metropolitan District to formally exchange information on potential threats to water supplies as well as current efforts to acquire open space and conservation lands.

Specific tasks will include:

1. Conduct a Household Hazardous Waste and Hard to Dispose of Materials Collection for the Town of Granville.

2. Develop criteria to prioritize open space areas for acquisition or preservation, and assemble existing information. Update the Open Space Plan for the Town of Granville in accordance with Massachusetts Department of Environmental Management guidelines.

3. Coordinate area aquifer protection efforts.

4. Submit Final Report to the Department.

COST: $20,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 00-05/SWT**

PROJECT TITLE: Austin Brook Reservoir Source Water Protection Project

INVESTIGATOR: Pioneer Valley Planning Commission

LOCATION: Westfield Basin, WERO

DESCRIPTION: The project will develop a comprehensive Surface Water Supply Protection Plan, land use inventory, and education program for the Town of Chester. The Plan will inventory and assess potential threats and existing impacts in the Austin Brook Reservoir and Horn Pond watersheds, and provide strategic planning guidance and implementation tools for use in protecting these water supplies. The Plan also will include provisions for watershed areas in the adjacent Town of Becket, parcel-based land use GIS maps, and an emergency response component. This project will be conducted in concert with the Department's SWAP program.

Specific tasks will include:

1. Delineate and map land uses, zoning, property ownership, protected open space, and potential contamination sources within the Austin Brook Reservoir and Horn Pond watersheds.

2. Develop a Surface Water Supply Protection Plan for the Austin Brook Reservoir and Horn Pond Watershed in accordance with the Department's "Developing a Local Surface Water Supply Protection Plan," dated May 2000 or as revised.

3. Submit Final Report to the Department.

COST: $21,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 00-06/SWT**

PROJECT TITLE: Crystal Lake Source Water Protection Project

INVESTIGATOR: Tighe & Bond

LOCATION: Millers Basin, CERO

DESCRIPTION: This project will develop a comprehensive Surface Water Supply Protection Plan for the City of Gardner's surface water supply system consisting of Cowee Pond, Perley Brook Reservoir, and Crystal Lake. The Plan will identify potential sources and pathways of contamination and provide a plan to reduce nonpoint discharges to surface waters. This project will be conducted in concert with the Department's SWAP program, and will incorporate an educational program that targets residents, public officials, community groups, businesses, agricultural entities, and others.

Specific tasks will include:

1. Develop a comprehensive Surface Water Supply Protection Plan for the City of Gardner's surface water supply system.

2. Submit Final Report to the Department.

COST: $17,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 00-07/SWT**

PROJECT TITLE: First Herring Brook Source Water Protection Project

INVESTIGATOR: North and South Rivers Watershed Association

LOCATION: South Coastal Basin, SERO

DESCRIPTION: This project will conduct a shoreline survey and an assessment of the First Herring Brook in the Town of Scituate, and present findings through public outreach and education. In order to maximize the educational potential of this project, science curriculum units will be made available to local schools. This project will be conducted in concert with the Department's SWAP program, and the comprehensive Surface Water Supply Protection Plan (SWSPP) being developed by Comprehensive Environmental, Inc. (CEI) as part of the Source Water Protection Project 00-14 SWT.

Specific tasks will include:

1. Conduct a shoreline survey and assess conditions within the First Herring Brook in accordance with the Department of Fisheries and Wildlife's Riverways Program. Coordinate efforts with the Scituate and Norwell Conservation Commission, CEI, and the Department's SWAP program. Data collected will focus on instream conditions, water quality, vegetation, riparian buffers, stormwater systems, pollution, wildlife, and land use, and will be provided to CEI on a monthly basis for use in the development of a SWSPP for Town of Scituate's surface water supply system.
2. Conduct public outreach. Develop a PowerPoint presentation of the Project and incorporate, as applicable, watershed maps developed by CEI. Identify stakeholders and invite their participation. Present survey results from Task 1 to local officials, stakeholders, etc. in a joint presentation with CEI and as part of the Source Water Protection Grant Project 00-14 SWT.
3. Submit Final Report to the Department.

COST: $33,632
FUNDING: $10,960 by the U.S. Environmental Protection Agency
$22,672 by the North and South River Watershed Association
DURATION: 2001-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 00-08/SWT**

PROJECT TITLE: Millvale Reservoir Source Water Protection Project
INVESTIGATOR: City of Haverhill
LOCATION: Merrimack Basin, NERO

DESCRIPTION: This project will develop an Emergency Response Plan, a Forest Management Plan for the Millvale Reservoir area, a septic system regulation ready for local adoption, a multi-town cooperative agreement, and a Land Management Manual for the City of Haverhill's Millvale watershed. The Millvale Reservoir supplies two-thirds of the City's drinking water needs.

Specific tasks will include:

1. Develop an Emergency Response Plan for the Millvale watershed. Plans will include an ongoing educational component that will continue into the future.
2. Develop a Forest Management Plan for Millvale Reservoir and Meadow Brook watersheds in accordance with Department of Environmental Management guidelines.
3. Develop and implement a multi-town cooperative agreement supporting area source water protection efforts in the watershed towns of Haverhill and Merrimac, MA, and Newton and Plaistow, NH. A multi-town cooperative agreement will initiate an exchange of information on potential threats to water supplies as well as current protection efforts in Haverhill and towns in the watershed.
4: Develop a Board of Health septic system regulation as per Department guidance, and present to the city for adoption. This regulation shall include design and inspection criteria, and a management plan for septic systems.
5. Incorporate the above deliverables as a Land Management Manual in an electronic format for ease of distribution and regular updates.
6. Submit Final Report to the Department.

COST: $17,500
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2001-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 00-09/SWT**

PROJECT TITLE: Atkins Reservoir Source Water Protection Project

INVESTIGATOR: Tighe and Bond, Inc.

LOCATION: Connecticut River Basin, WERO

DESCRIPTION: This project will develop a comprehensive Surface Water Supply Protection Plan for the Town of Amherst's Atkins Reservoir, and update the Town's timber stand inventory. A Protection Plan will identify the potential sources and pathways of contamination and provide a plan to reduce nonpoint discharges to surface waters. This project will be conducted in concert with the Department's SWAP program.

Specific tasks will include:

1. Develop a Surface Water Supply Protection Plan, including an emergency response component, for the Atkins Reservoir in accordance with the Department's "Developing a Local Surface Water Supply Protection Plan," dated May 2000 or as revised. Conduct municipal and public meetings to educate stakeholders on the plan, its function, and its importance.

2. Update the Town of Amherst's Timber Stand Inventory in accordance with the Department of Environmental Management guidelines, to establish an appropriate cutting rate. The updated inventory will be incorporated into the comprehensive Surface Water Supply Protection Plan developed in Task 1.

3. Submit Final Report to the Department.

COST: $27,500

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 00-10/SWT**

PROJECT TITLE: Seekonk Source Water Protection Project

INVESTIGATOR: Tellus Institute

LOCATION: Narragansett Bay & Mt. Hope Bay Basins, SERO

DESCRIPTION: This project will develop and implement a comprehensive Source Water Protection Plan for the Seekonk Water District. This project will survey potential and existing impacts to the wellfield, develop a comprehensive Wellhead Protection Plan, and implement educational and outreach programs for source water protection. This project will be conducted in concert with the Department's SWAP program.

Specific tasks will include:

1. Conduct a land use survey to identify and inventory potential and existing high-risk land uses within the Zones I and II of the District's wells. The decision whether or not to perform field surveys "as appropriate" will be coordinated with the Department.
2. Develop a comprehensive Wellhead Protection Plan for the Seekonk Water District.
3. Develop and implement an educational and outreach program on low-impact lawn care practices and proper septic system maintenance. Develop informational brochures and distribute them to all Seekonk Water District customers, and conduct at least three public informational presentations describing the water system and how each citizen may contribute to the protection of the water supply.
4. Submit Final Report to the Department.

COST: $22,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 00-11/SWT**

PROJECT TITLE: Canoe River Aquifer Source Water Protection Project

INVESTIGATOR: Massachusetts Department of Food and Agriculture

LOCATION: Taunton Basin, SERO

DESCRIPTION: This project will develop and implement a model public outreach campaign to promote responsible and environmentally sustainable approaches to residential pesticide and fertilizer use. Implementation efforts will focus on towns that draw water from the Canoe River aquifer: Norton, Mansfield, Easton, Foxborough, and Sharon.

Specific tasks will include:

1. Develop a strategy, which can be extended statewide, to increase public awareness of the connection between pesticide and fertilizer use and the contamination of private wells and municipal drinking water supplies, and educate them on ecologically sensitive approaches to pesticide and fertilizer use such as Integrated Pest Management (IPM). Include educational materials such as an informational poster, fact sheets summarizing area water quality issues and the regular testing of wells, a consumer guide to promote ecologically sensitive pesticide and fertilizer use, and a training manual for communities to use for projects promoting reduced use of pesticides and fertilizers, environmental awareness, IPM, and ecologically sound gardening practices.
2. Implement a public education campaign to boost program visibility and to encourage all consumers to practice sustainable pesticide and fertilizer use.
3. Assess the success of Tasks 1 and 2 (above), and investigate the transferability of this public education approach to other communities within the Taunton Basin and across the Commonwealth. Identify the most effective educational materials so that resources can be most effectively targeted.
4. Submit Final Report to the Department.

COST: $44,360
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2001-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 00-12/SWT**

PROJECT TITLE: Danvers/Middleton Source Water Protection Project

INVESTIGATOR: Ipswich River Watershed Association

LOCATION: Ipswich Basin, NERO

DESCRIPTION: This project will review known and potential drinking water supply threats and protection measures, and recommend improvements for protection of the drinking water sources for the Towns of Danvers and Middleton. This project will map stormwater infrastructure, non-point source threats to water quality, and update open space datalayers; identify outfalls and stormwater BMPs to facilitate improved stormwater management; and, review emergency response readiness. In addition, this project will develop improved protocol for protection of water sources from stormwater contamination and spills of hazardous materials.

Specific tasks will include:

1. Map stormwater discharge and associated infrastructure that discharge to the zones of contribution for Danvers' water sources. Locate and map known non-point source pollution threats to water quality. Update the GIS open space datalayer and include zoning information and the FEMA 100 year flood plain.
2. Identify appropriate stormwater BMPs to improve stormwater management. Obtain site data and information on stormwater BMPs to identify those approaches that are optimal to protect Emerson Brook Reservoir and any other problems that may be identified during the course of the project.
3. Assess emergency response readiness, and review procedures for emergency response with appropriate officials to ensure that Danvers and Middleton will work effectively together in the event of a spill or other threat to water supply.
4. Submit Final Report to the Department.

COST: $18,675

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 00-13/SWT**

PROJECT TITLE: Cape Cod Source Water Protection Project

INVESTIGATOR: Cape Cod Commission

LOCATION: Cape Cod Basin, SERO

DESCRIPTION: This project will support Groundwater Guardian education and outreach activities in all fifteen Cape Cod Communities.

Specific tasks will include:

1. Conduct Groundwater Guardian activities in Cape Cod Communities to address water supply protection and safe drinking water issues. Organize Groundwater Guardian meetings, including mailings, minutes and follow-up; coordinate Groundwater Guardian events including water festivals and school events; distribute Groundwater Guardian water conservation materials; and, be available to water suppliers for ongoing assistance with education and outreach.

2. Submit Final Report to the Department.

COST: $10,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 00-14/SWT**

PROJECT TITLE: Old Oaken Bucket Pond Source Water Protection Project
INVESTIGATOR: Comprehensive Environmental, Inc.
LOCATION: South Coastal Basin, SERO

DESCRIPTION: This project will develop a Surface Water Supply Protection Plan for the Town of Scituate. It will identify potential sources and pathways of contamination, and provide a plan to reduce nonpoint source discharges to the Tack Factory Pond, Scituate Reservoir, and Old Oaken Bucket Pond. This project will review alternative road standards for water supply protection to reduce the threat of impervious surfaces and other stormwater threats from future development. This project will be conducted in concert with a shoreline survey conducted by the North and South Rivers Watershed Association as part of the Source Water Protection Project 00-07 SWT.

Specific tasks will include:

1. Collect data on potential threats to the Zones A, B, and C of the Tack Factory Pond, Scituate Reservoir, portions of First Herring Brook, and Old Oaken Bucket Pond.
2. Inventory and assess potential and existing contaminant sources within the Zones A, B, and C of the Tack Factory Pond, Scituate Reservoir, portions of First Herring Brook, and Old Oaken Bucket Pond. Verify current and collect new information including GPS coordinates of all high-risk land uses within the zones of contribution. Incorporate applicable watershed survey data from 00-07 SWT.
3. Map potential threats to the water supply. Update current or supplement existing GIS data layers, as appropriate.
4. Develop a comprehensive Surface Water Supply Protection Plan for the Town of Scituate's surface water supply system.
5. Review Scituate's existing watershed overlay regulations and bylaws to determine if additional controls are necessary. Review model regulations and discuss options with the Town.
6. Conduct local meetings to educate stakeholders on the Plan, its function, and its importance, and invite their participation. Present the Plan, regulatory review, and recommendations to local officials, stakeholders, and others in a joint presentation with the North and South River Watershed Association.
7. Submit Final Report to the Department.

COST: $22,852
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2001-2003

## WELLHEAD PROTECTION GRANT PROJECTS 2000

### MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
### WELLHEAD PROTECTION GRANT PROJECT 00-01/WHP

PROJECT TITLE: Green Meadows School Wellhead Protection Project

INVESTIGATOR: Hampden-Wilbraham Regional School District

LOCATION: Connecticut Basin, WERO

DESCRIPTION: This project will inspect and repair the Green Meadows Elementary School's faulty on-site disposal system. It will clean and inspect sewer lines and a stormwater drain pipe, and will repair or replace two existing manholes, upgrade the septic system, clean waste vents, replace sewer pipe, replace the boys' bathroom floor drain (in east wing), and pump the septic tanks and properly dispose of its contents. This project will eliminate an immediate public health threat to students and the threat of contamination to the water supply by replacing sewer lines and septic system components in the Zone I of the school's water supply.

Specific tasks will include:

1. Engineering inspection, review, and design for remediation of the leaking sewer lines, manholes, septic system components, waste vents, bathroom floor drain, and the stormwater drain piping under School.

2. Implement engineered remediation for leaking sewer lines; repair or replace two existing manholes; repair septic system and dosing chambers; ensure proper venting; replace bathroom floor drain; and clean the stormwater drain piping under the school. Pump the septic tanks and properly dispose of contents.

3. Submit Final Report to the Department.

COST: $42,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 00-02/WHP**

PROJECT TITLE: Ayer Wellhead Protection Project

INVESTIGATOR: Town of Ayer

LOCATION: Merrimack Basin, CERO

DESCRIPTION: This project will develop a comprehensive Wellhead Protection Plan for the Town of Ayer. The project will also identify and map the existing and potential threats to the Grove Pond and Spectacle Pond Wells, create an industrial hazardous materials map, install wellhead protection signs at two well sites, replace gates to protect the Grove Pond wells, and update the town's emergency water supply plan.

Specific tasks will include:

1. Develop a comprehensive Wellhead Protection Plan and update the existing Emergency Plan.
2. Develop a public educational outreach program; include components on water conservation and water quality protection. Post 23 water supply protection signs within the Zone IIs.
3. Purchase and install two new chain link swing gates to protect the pump stations at the Grove Pond well site.
4. Conduct a land use survey within the Zones II and III of the Grove Pond wells 01G and 02G and Spectacle Pond wells 03G and 04G. The survey will identify existing and potential threats and areas of impervious surfaces and stormwater runoff.
5. Update the Town's Aquifer Protection Overlay District map to show the existing and potential threats to the Grove Pond and Spectacle Pond wells; datalayers will include type of chemicals stored, generated, treated, or used.
6. Conduct an audit of the commercial and industrial facilities within the Zone IIs. The audit will assess the type and quantity of materials stored at individual locations. Information on BMPs will be provided to the audited industries.
7. Submit Final Report to the Department.

COST: $31,300
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2001-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 00-03/WHP**

PROJECT TITLE: Saint Vincent's Wellhead Protection Project

INVESTIGATOR: Saint Vincent's Home

LOCATION: South Coastal Basin, SERO

DESCRIPTION: This project will install appropriate secondary containment structures around two 275-gallon home heating oil tanks in each of three basements located within the Zone I of the public water supply for Saint Vincent's Home, a residential home for displaced children and young adults. This project is a cost-effective means of eliminating a potential threat to the water supply for this facility.

Specific tasks will include:

1. Design appropriate secondary containment structures for heating oil tanks.

2. Purchase and install approved secondary containment structures for heating oil tanks located in the Zone I. In each of three basements located within the Zone I of the public water supply the containment structures must be properly installed according to approved design specifications, state and federal regulations, and local Fire Department requirements.

3. Submit Final Report to the Department.

COST: $4,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2001

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 00-04/WHP**

PROJECT TITLE: Acton Wellhead Protection Project

INVESTIGATOR: Water District of Acton

LOCATION: Concord Basin, NERO

DESCRIPTION: This project will assess high-risk land-use activities within the Zone IIs of the Water Supply District of Acton. This effort will include working in surrounding towns that control portions of the District's Zone II areas. Site investigations will be conducted to verify current information and collect new information, and GIS data layers will be updated to enhance source water protection efforts. This project will also identify data gaps in land use information.

Specific tasks will include:

1. Assess high-risk activities using the Department's SWAP program criteria within the entire Zone II of each well. These activities include facilities that generate, treat, store, or dispose of hazardous materials/waste, large septic systems (2,000 to 15,000 gpd), farms, rights-of-way, recreational properties managed with pesticides/fertilizers/manure, USTs, salt/deicing materials storage, etc.

2. Surveys will be conducted to verify current data and collect new information including GPS coordinates of all high-risk land uses within the Zone IIs. Watershed and inventory features will be mapped in coordination with MassGIS.

3. Update current or create additional GIS data layers, as appropriate, to enhance source water protection efforts. This task will also identify data gaps in land use information.

4. Submit Final Report to the Department.

COST: $42,600

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 00-05/WHP**

PROJECT TITLE: Shelburne Falls Wellhead Protection Project-Phase II

INVESTIGATOR: Shelburne Falls Fire District

LOCATION: Deerfield Basin, WERO

DESCRIPTION: This project will initiate a K-12 educational curriculum; support the adoption of a Board of Health floor drain regulation; develop a Hazardous Materials Storage and Floor Drain Inspection Program; and repair the wellhouse brick walls that leak and allow for stormwater flooding. The floor drain regulation must be adopted and implemented in the Town of Colrain where the Zone IIs are located prior to the implementation of the inspection program. The health education curriculum component will be developed and implemented within the local school district.

Specific tasks will include:

1. Develop and implement a K-12 health education curriculum component in conjunction with the Mohawk Trail Regional School District; the curriculum will address water supply protection and safe drinking water issues.
2. Work with the Town of Colrain to adopt a Board of Health floor drain regulation consistent with the Department's Wellhead Protection Regulation 310 CMR 22.21(2)a(8) or the Department's model BOH floor drain regulation. The regulation must address the Zone II recharge area of Wells 01G and 02G located in Colrain.
3. Develop and implement a Hazardous Materials Storage and Floor Drain Inspection Program for the Zone II recharge areas of Wells 01G and 02G. Execution of this task is dependent upon the Town of Colrain approving and implementing a Board of Health floor drain control regulation.
4. Repair the wellhouse walls that currently leak.
5. Submit Final Report to the Department.

COST: $28,300

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 00-06/WHP**

PROJECT TITLE: Wayland Wellhead Protection Project

INVESTIGATOR: Town of Wayland

LOCATION: Concord Basin, NERO

DESCRIPTION: This project will install security fencing to protect the Town of Wayland's wells and treatment building at the Happy Hollow well site. This project also will install wellhead protection signs at the Baldwin Pond and the Happy Hollow well sites.

Specific tasks will include:

1. Purchase and install 300 linear feet of six-foot high chain link fence and gates to protect the pump stations and chemical feed building at the Happy Hollow well site.

2. Purchase and install a wellhead protection sign along the access road to the Happy Hollow well site between the site and the high school, and five wellhead protection signs along the perimeter of the Baldwin Pond well site.

3. Submit Final Report to the Department.

COST: $7,400

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 00-07/WHP**

PROJECT TITLE: Lanesborough Wellhead Protection Project

INVESTIGATOR: Lanesborough Village Fire and Water District

LOCATION: Housatonic River Basin, WERO

DESCRIPTION: This project will construct catch basins and piping (BMPs) to detain and redirect stormwater from entering the Town Brook, within the Zone I of Lanesborough Village Fire and Water District's well number 02G. Miner Road currently discharges untreated stormwater directly to the Brook which overlays the aquifer for well number 02G. The new piped system will terminate in a detention basin located outside the bordering vegetated wetlands. This basin will ultimately discharge into the Brook downstream of the well and downstream of the wetlands, eliminating untreated storm water from discharging into the Zone I.

Specific tasks will include:

1. Design and install a closed drainage system of paired stormwater catch basins along 1,500 linear feet of Miner Road. The piped system will terminate in a detention basin outside of the bordering vegetated wetlands along Town Brook. The discharge from the detention basin will enter the brook downstream of the wellhead and downstream of the wetlands, removing Miner Road runoff as a potential threat to the water supply.
2. Develop an Operation and Maintenance Plan to ensure that the BMPs function as designed. The Plan must identify the party responsible for operation and maintenance; schedule for inspection and maintenance; routine and non-routine maintenance tasks; source of funding to continued operations and maintenance; and, description and delineation of public safety features.
3. Submit Final Report to the Department.

COST: $133,900
FUNDING: $45,000 by the U.S. Environmental Protection Agency
$88,900 by the Town of Lanesborough
DURATION: 2001-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 00-08/WHP**

PROJECT TITLE: West Newbury Wellhead Protection Project

INVESTIGATOR: Town of West Newbury

LOCATION: Merrimack River Basin, NERO

DESCRIPTION: This project will construct a new storage facility for water treatment chemicals currently located in the Zone I of the Town of West Newbury's wellfield. The present system is inadequate, unsafe for employees, and a potential threat to Artichoke Reservoir, within the Zone I. KOH, loaded in 55 gallon barrels, currently is brought into an undersized storage building by hand. A rupture could release chemicals directly into the reservoir. Relocating and upgrading the storage facility will ensure that liquid chemicals cannot contaminate the nearby wells in the event of a spill.

Specific tasks will include:

1. Design and construct new storage facility for water treatment chemicals as per approved design specifications and local, state and federal regulations.

2. Submit Final Report to the Department.

COST: $26,876

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 00-09/WHP**

PROJECT TITLE: Dedham-Westwood Wellhead Protection Project
INVESTIGATOR: Dedham-Westwood Water District
LOCATION: Charles River Basin, NERO
DESCRIPTION: This project will study the impacts to the Fowl Meadow aquifer, which recharges the Dedham-Westwood Water District's White Lodge wellfield and which provides most of the drinking water for the Towns of Dedham and Westwood. The Zone I of well number 5 and the Zone II of the entire wellfield are immediately vulnerable to runoff draining from Route 128 and the new MBTA parking garage at University Avenue. This project will analyze impacts from road salt/deicing application, impacts from the stormwater runoff from the parking garage, the efficacy of the Massachusetts Highway Department's (MHD) current stormwater management plan, and operation and maintenance of BMPs designed to address this runoff. The Plan will develop alternatives, such as best management deicing practices, to mitigate highway and parking related impacts to water quality. The project will also update local stormwater drainage maps of the drainage area surrounding the Zone I of well #5.

Specific tasks will include:

1. Conduct aquifer impact analysis through stormwater sampling, assessment of MHD's stormwater management plan, collection of storm drainage area data, and land-use inventory. Determine impacts to water quality within the Zone I and II due to MHD's road salt application on Route 128 near University Avenue. Update stormwater drainage maps of the drainage area surrounding the Zone I of well #5. Develop alternatives to mitigate water quality impacts to the Fowl Meadow aquifer.
2. Conduct aquifer impact analysis through stormwater sampling, storm drainage system mapping, and assessment of stormwater BMPs to determine aquifer water quality impacts within the Zone I of well #5 due to operations at the new parking garage and related traffic on University Ave. Determine if current stormwater management practices at the garage are adequate to protect the aquifer. Develop alternatives to mitigate aquifer water quality impacts.
3. Submit Final Report to the Department.

COST: $44,900
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2001-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 00-10/WHP**

PROJECT TITLE: Hadley Wellhead Protection Project

INVESTIGATOR: Town of Hadley

LOCATION: Connecticut Basin, WERO

DESCRIPTION: This project will install security fencing in an effort to protect two of the Town of Hadley's active wells and a pump house from vandalism, unauthorized access, and adjacent farm animals. Fencing will better secure the isolated Mount Warner wells #1 and 2 (the town's primary sources) located in an isolated, active pasture area.

Specific tasks will include:

1. Purchase and install 470 linear feet of eight-foot high, green plastic coated commercial grade chain link fence and a gate to protect the Mount Warner well #1 and well house #1.

2. Purchase and install a commercial grade chain link gate to close off the fencing at Mt. Warner well #2.

3. Purchase and install eighteen-wellhead protection signs at visible locations along the boundaries of the Mount Warner wells #1 and 2, and the Callahan wells #3 and 4.

4. Submit Final Report to the Department.

COST: $15,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 00-11/WHP**

PROJECT TITLE: Cheshire Wellhead Protection Project

INVESTIGATOR: Town of Cheshire

LOCATION: Hudson River Basin, WERO

DESCRIPTION: This project will create a public education and outreach program, update the Emergency Action Plan, supplement the existing Wellhead Protection Plan, install wellhead protection signs, and install protective fencing to prevent unauthorized access to the Town of Cheshire's wellfield.

Specific tasks will include:

1. Purchase and install 300 feet of six-foot high chain link fence and a locking gate to deter unauthorized entry to the two Zone I areas.

2. Purchase and install 20-aquifer/wellhead protection signs at visible locations along the perimeter of the Zone I at the town's well sites.

3. Develop and implement a public education and outreach program for town residents. Design, print, and distribute at least 600 informational brochures describing Cheshire's well and water supply system, and how to protect it. Conduct two public informational meetings that describe the water system as well as methods on how each citizen may contribute to the protection of the water supply.

4. Revise the existing Wellhead Protection Plan and the Emergency Action Plan. The existing Emergency Plan will be updated and revised to include additional information, and will provide direction to the Town personnel in the event of an emergency.

5. Submit Final Report to the Department.

COST: $27,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 00-12/WHP**

PROJECT TITLE: Ware Wellhead Protection Project

INVESTIGATOR: Town of Ware

LOCATION: Chicopee Basin, WERO

DESCRIPTION: This project will develop and implement an Emergency Response Plan for the Town of Ware. A formal Emergency Response Plan will help protect against drought, potential contamination, and other unfavorable circumstances.

Specific tasks will include:

1. Develop an Emergency Response Plan as per Department guidance. Plans will include an educational component which, when implemented, will continue into the future.

2. Submit Final Report to the Department.

COST: $4,650

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 00-13/WHP**

PROJECT TITLE: Sanderson Academy Wellhead Protection Project

INVESTIGATOR: Sanderson Academy

LOCATION: Deerfield Basin, WERO

DESCRIPTION: This project will install security fencing and a pumphouse to protect the Sanderson Academy's sole source water supply from unauthorized access. This project will also install a level indicator on the well to better regulate pumping, relocate the inlet from the well to minimize the possibility of the water inlet pipe freezing, and develop educational curricula on source protection, and related environmental issues.

Specific tasks will include:

1. Relocate inlet piping (where the pipe from the well enters into the School's boiler room) to protect the pipe from freezing problems.

2. Purchase and install 40 linear feet of at least six-foot high chain link fence and a locking gate, and four-aquifer protection signs to protect the wellhead.

3. Purchase and install a level indicator on the well to better regulate pumping, and to prevent overuse of the system and overflow from draining down the well.

4. Purchase and install a wellhead pumphouse.

5. Develop and implement a comprehensive educational curriculum for wellhead protection

6. Submit Final Report to the Department.

COST: $16,500

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2002

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 00-14/WHP**

PROJECT TITLE: Sheffield Wellhead Protection Project

INVESTIGATOR: Sheffield Water Company

LOCATION: Housatonic Basin, WERO

DESCRIPTION: This project will develop a comprehensive Wellhead Protection Plan for the Sheffield Water Company that will include an updated emergency plan. The project will also conduct an educational program with town officials to implement source protection recommendations from the recent Zone II Delineation Report. As a private entity, the Sheffield Water Company cannot implement bylaws, but will work with the Sheffield Selectmen, BOH, and Planning Board and municipal officials from neighboring communities in an effort to create consistent legal protections within the entire Zone II area.

Specific tasks will include:

1. Develop a comprehensive Wellhead Protection Plan and update the existing Water Supply Emergency Plan in accordance with Department guidance. The Plans will include a public educational outreach program.

2. Submit Final Report to the Department.

COST: $17,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 00-15/WHP**

PROJECT TITLE: Whately Wellhead Protection Project

INVESTIGATOR: Town of Whately

LOCATION: Connecticut Basin, WERO

DESCRIPTION: This project will develop a comprehensive Wellhead Protection Plan and install a lightning protection system for the Town of Whately's water supply system. Lightning protection will help protect the water supply from lightning strikes that have interrupted service on four occasions in the recent past. The successful completion of this project will help ensure a continued potable water supply for the town.

Specific tasks will include:

1. Development of Wellhead Protection Plan as per Department guidance. The Plan will include an educational component that when implemented, will continue into the future.

2. Purchase and install lightning protection system as per approved design specifications.

3. Submit Final Report to the Department.

COST: $27,400

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 00-16/WHP**

PROJECT TITLE: West Groton Wellhead Protection Project

INVESTIGATOR: West Groton Water District

LOCATION: Nashua River Basin, CERO

DESCRIPTION: This project will relocate a subsurface wastewater disposal system currently located within 400 feet of the West Groton Water District's tubular wellfield, install a groundwater-monitoring network, and conduct two rounds of water sampling in an effort to protect the District's only source of drinking water. The groundwater-monitoring network will provide for early warning of contaminant threats and will characterize the hydrogeology of the wellfield (groundwater flow, depth to groundwater etc).

Specific tasks will include:

1. Purchase and install a new 3,000-gallon tight tank more than 400 feet from the wellfield in accordance with local and state requirements.

2. Properly remove the old septic system in accordance with local and state requirements.

3. Install four monitoring wells in Zones I and II.

4. Conduct two rounds of groundwater sampling in accordance with an approved QAPP.

5. Submit Final Report to the Department.

COST: $20,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2001-2002

## SOURCE WATER PROTECTION GRANT PROJECTS 2000

### MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
### SOURCE WATER PROTECTION GRANT PROJECT 01-01 SWT

PROJECT TITLE: Northampton Source Water Protection Project
INVESTIGATOR: City of Northampton
LOCATION: Connecticut Basin, WERO

DESCRIPTION: This project will identify, delineate, survey, and map specific areas of severe erosion (scouring, blow outs, etc.) adjacent to perennial feeder brooks and on critical access roads throughout Northampton's Ryans and West Whately Reservoir watersheds. Wetlands adjacent to the eroded areas confirmed via field investigations. This project will also design mitigation of eroded areas and will design, print and distribute educational flyers on appropriate use of forested watershed lands; the flyer will be distributed in the neighboring communities of Conway, Whately, Williamsburg, and Ashfield. Research will be done as to the legal status of critical access roads in the watershed to facilitate the installation of barriers to control access points.

Specific tasks will include:

1. Identify through field investigations, photograph, delineate, and map eight areas of severe erosion adjacent to feeder brooks and on critical access roads throughout the watershed for the City's Ryans and West Whately Reservoirs.
2. Flag, survey, and map adjacent and adjoining wetlands to the eroded areas and on critical access roads identified in Task 1. Maps will include surveyed locations, slopes, and drainage basin acreages needed to design corrective actions. Conduct field investigations as needed to confirm GIS.
3. Design mitigation for the eroded areas identified in Task 1.
4. Design and print 7,200 educational flyers on appropriate use (per DEM guidelines) of forested watershed lands, and distribute in the neighboring communities of Conway, Whately, Williamsburg, and Ashfield. Post approved educational materials on the municipal website.
5. Research the legal status (ownership, classification of roads, etc.) of critical access roads in watershed and verify with a legal opinion to facilitate installation of barriers to control access points.
6. Reporting

COST: $23,000
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 01-02 SWT**

PROJECT TITLE: Lawrence Source Water Protection Project

INVESTIGATOR: City of Lawrence

LOCATION: Merrimack Basin, NERO

DESCRIPTION: This project will develop and implement a public education and outreach campaign to raise awareness of the City of Lawrence's drinking water source (Merrimack River) and to promote water supply protection measures for the City. This project will create a volunteer water protection corps and conduct a storm drain-stenciling program. An aggressive educational campaign targeting businesses, residents, city officials, and school children will help address the open dumping of solid waste and motor oil directly into the Merrimack River, the source of the City's drinking water.

Specific tasks will include:

1. Develop and implement a public education and outreach campaign for classroom presentations for 1st, 3rd, 5th, and 9th grades, and for radio talk shows, public lectures, and lectures to city officials. Develop outreach print ads, brochures, posters and street banners, radio announcement scripts, and lecture formats.

2. Create volunteer water protection corps to assist in the public education and outreach campaign, the storm drain stenciling program, and future efforts to protect the Merrimack, Spicket, and Shawsheen Rivers.

3. Develop and implement a storm drain-stenciling program. Identify and prioritize important storm drains and conduct storm drain stenciling campaign.

4. Reporting.

COST: $23,700
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 01-03 SWT**

PROJECT TITLE: Lynn Source Water Protection Project

INVESTIGATOR: City of Lynn

LOCATION: North Coastal Basin, NERO

DESCRIPTION: This project will develop a comprehensive Surface Water Supply Protection Plan for the City of Lynn's Breeds, Hawkes, Birch, and Walden Ponds Reservoirs, and Ipswich River and Saugus River sources. A comprehensive SWSPP will significantly enhance the protection of the watershed for the City's water supply system by identifying the potential sources and pathways of contamination and providing actions and a time-line to address them.

Specific tasks will include:

1. Develop a Surface Water Supply Protection Plan for the City of Lynn's Breeds Pond, Hawkes Pond, Birch Pond, and Walden Pond Reservoirs, and upstream reaches of the Ipswich River and Saugus River sources, as per the Department's "Developing a Local Surface Water Supply Protection Plan" dated May 2000, or as revised. Conduct municipal and public meetings to educate stakeholders on the Plan, its function, and its importance. Develop and implement an educational and outreach program.

2. Submit Final Report to the Department.

COST: $45,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 01-04 SWT**

PROJECT TITLE: Newburyport Source Water Protection Project

INVESTIGATOR: City of Newburyport

LOCATION: Merrimack Basin, NERO

DESCRIPTION: This project will develop a comprehensive Surface Water Supply Protection Plan for the City of Newburyport's Artichoke/Indian Hill Reservoir system. A comprehensive SWSPP will significantly enhance the protection of the watershed for the City's water supply system by identifying the potential sources and pathways of contamination and providing actions and a time-line to address them.

Specific tasks will include:

1. Develop a Surface Water Supply Protection Plan for the City of Newburyport's Artichoke/Indian Hill Reservoir system, as per the Department's "Developing a Local Surface Water Supply Protection Plan" dated May 2000, or as revised. Conduct municipal and public meetings to educate stakeholders on the Plan, its function, and its importance.

2. Submit Final Report to the Department.

COST: $20,200

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 01-05 SWT**

PROJECT TITLE: Westfield Source Water Protection Project

INVESTIGATOR: City of Westfield

LOCATION: Westfield Basin, WERO

DESCRIPTION: This project will develop a Forest Management Plan for the City of Westfield's Granville Reservoir watershed. This project will inventory forested watershed lands and incorporate forestry management strategies to ensure safe water supplies for the future. The maintenance of a diverse, healthy forest cover throughout the watershed can help protect reservoir water quality.

Specific tasks will include:

1. Develop a Forest Management Plan for the City of Westfield's Granville Reservoir watershed in accordance with Department of Environmental Management guidelines. Include an inventory of existing forest conditions, recommendations for forest management and best management practices to maintain and improve the water quality at the Reservoir, specific 5-year and 10-year control plans, and maps of conditions and identified management areas.

2. Submit Final Report to the Department.

COST: $12,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 01-06 SWT**

PROJECT TITLE: Camp Wind-in-the-Pines Source Water Protection Project

INVESTIGATOR: YWCA of Central Massachusetts

LOCATION: French River Basin, CERO

DESCRIPTION: This project will design the replacement of two septic systems located within the Zone I of YWCA of Central Massachusetts' Camp Wind-in-the-Pines (located in the Town of Leicester). The design will include a single collection system, pump station and force main to replace two separate septic systems, one of which has failed. The design of the new system must be in compliance with Title 5 of the State Environmental Code.

Specific tasks will include:

1. Design the replacement of two septic systems currently located within the Zone I of a public water supply to include a single collection system, pump station and force main to replace two separate septic systems, one of which has failed.

2. Submit Final Report to the Department.

COST: $11,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 01-07 SWT**

PROJECT TITLE: Swansea Source Water Protection Project

INVESTIGATOR: Swansea Water District

LOCATION: Narraganset Bay and Mt. Hope Bay Basins, SERO

DESCRIPTION: This project will conduct land management, wellhead protection, and public outreach activities for the Swansea Water District. The contractor will develop written strategies for management of existing district-owned properties; conduct an on-site survey and identification of potential threats to the groundwater sources; provide wellhead protection education and outreach to all abutters on the sensitivity of the District's groundwater sources to contamination by adverse land uses; and conduct enforcement as needed. Given the diffuse nature of the District's existing drinking water sources (eleven sources located within five wellfields), proactive wellhead protection measures are vital to ensure an adequate and safe water supply over the long term. The project will be conducted in concert with the Department's SWAP program.

Specific tasks will include:

1. Conduct a land use survey to identify and inventory land uses within the District wellfields' protection Zones I and II. Develop written strategies for management of existing district-owned properties, conduct a public outreach program, and conduct enforcement as needed. The contractor will perform field surveys, and will use maps, GIS datalayers, aerial photos, Town Assessor's data and other existing information to carry out this task. The survey will provide follow-up recommendations, outreach, and enforcement as appropriate.

2. Submit Final Report to the Department.

COST: $25,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 01-08 SWT**

PROJECT TITLE: Andover Source Water Protection Project

INVESTIGATOR: Town of Andover

LOCATION: Merrimack River Basin, NERO

DESCRIPTION: This project will develop a comprehensive Surface Water Supply Protection Plan for the Town of Andover's Haggetts Pond, Fish Brook, and Merrimack River drinking water sources. A comprehensive SWSPP will significantly enhance the protection of the Town's water supply by identifying the potential sources and pathways of contamination and providing actions and a time-line to address them.

Specific tasks will include:

1. Develop a comprehensive Surface Water Supply Protection Plan for the Town of Andover's Haggetts Pond and Fish Brook watersheds, and the reach of the Merrimack River upstream of the intake, in accordance with the Department's "Developing a Local Surface Water Supply Protection Plan," dated May 2000, or as revised. Conduct municipal and public meetings to educate stakeholders on the plan, its function, and its importance.

2. Submit Final Report to the Department.

COST: $25,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 01-09 SWT**

PROJECT TITLE: West Springfield Source Water Protection Project

INVESTIGATOR: Mary K. Wigmore Forest Management

LOCATION: Westfield Basin, WERO

DESCRIPTION: This project will inventory forested watershed lands, prescribe management of the protection/infiltration forest, and develop a public education brochure for the Town of West Springfield's Bear Hole Reservoir watershed. The maintenance of a diverse, healthy forest cover throughout the watershed can help protect reservoir water quality. The educational brochure will improve the water consumer's understanding of the importance of watershed management for water quality protection and will be distributed to water consumers, schools, garden clubs, and town government offices. This project will be conducted in concert with the Department's Source Water Assessment Program.

Specific tasks will include:

1. Inventory forested watershed lands of the Bear Hole Reservoir in consistent with Department of Environmental Management guidelines. Develop a database to monitor inventoried data as well as future inventories. Analyze data to determine if sufficient forest stock exists in each age class, and provide specific strategies to correct any stocking shortfalls. Provide recommendations to manage the watershed forest in accordance with the requirements of a healthy, diverse protection/infiltration forest.

2. Develop an informational brochure and distribute to all the Town's drinking water consumers. Conduct a public informational presentation describing the water system and how each citizen may contribute to the protection of the water supply.

3. Submit Final Report to the Department.

COST: $13,100

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 1-10 SWT**

PROJECT TITLE: Ashburnham Source Water Protection Project

INVESTIGATOR: Tighe & Bond, Inc.

LOCATION: Merrimack Basin, CERO

DESCRIPTION: This project will develop a comprehensive Surface Water Supply Protection Plan for the Town of Ashburnham's Upper Naukeag Lake and will design a replacement guardrail along Lake Road where it passes along the Lake. A comprehensive SWSPP will significantly enhance the protection of the water supply for both the Town of Ashburnham and the Town of Winchendon by identifying the potential sources and pathways of contamination, and providing actions and a time-line to address them. The upgraded guardrail will replace the existing rusted guardrail to prevent cars from accidentally driving into the Upper Naukeag Lake. All activities will be conducted in concert with the Department's Source Water Assessment Program.

Specific tasks will include:

1. Develop a Surface Water Supply Protection Plan for the Town of Ashburnham's Upper Naukeag Lake, in accordance with the Department's "Developing a Local Surface Water Supply Protection Plan," dated May 2000, or as revised. Conduct municipal and public meetings to educate stakeholders on the plan, its function, and importance.

2. Design and provide drawings and specifications for a replacement guardrail along Lake Road to replace the existing, rusting guardrail that will prevent cars from accidentally driving into the lake.

3. Submit Final Report to the Department.

COST: $23,500

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 01-11 SWT**

PROJECT TITLE: Ipswich Source Water Protection Project

INVESTIGATOR: Comprehensive Environmental Incorporated

LOCATION: Ipswich River Basin, NERO

DESCRIPTION: This project will develop a comprehensive Surface Water Supply Protection Plan for the Town of Ipswich's Dow and Bull Brook Reservoirs. A comprehensive SWSPP will significantly enhance the protection of the Town's water supply by identifying the potential sources and pathways of contamination, and providing actions and a time-line to address them. This project will be conducted in concert with the Department's Source Water Assessment Program.

Specific tasks will include:

1. Develop a Surface Water Supply Protection Plan, including a local protection map for the Town of Ipswich's Dow and Bull Brook Reservoirs, in accordance with the Department's "Developing a Local Surface Water Supply Protection Plan". The contractor will review state and local files, GIS datalayers, aerial photos, Town Assessor's data and other existing information, interview town employees, and conduct a field survey to identify and inventory potential and existing high-risk land uses and potential sources of contamination (consistent with the Department's SWAP program criteria) within the Zones A, B, C, I, and II. Conduct a public meeting at the end of the project to involve and educate the Conservation Commission, Open Space Committee, and other stakeholders on the plan, its function, and importance. Develop a GIS watershed map that includes watershed characteristics, and open space and local zoning.

2. Submit Final Report to the Department.

COST: $23,500

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 01-12 SWT**

PROJECT TITLE: Agricultural Technical Assistance Project
INVESTIGATOR: Massachusetts Department of Food and Agriculture
LOCATION: Statewide Massachusetts

DESCRIPTION: This project will provide technical assistance and training on agricultural management measures as they relate to water supply protection. It will coordinate communication and efforts related to agricultural impacts on drinking water among farmers, municipal officials, state officials, and agricultural service providers.

Specific tasks will include:

1. Assemble, create, and distribute materials for training. Research and acquire as necessary existing materials relevant to the topics of improving and protecting water quality. Materials will be selected based on their relevance to dairy farmers and farmers using pesticides.
2. Provide educational outreach to farmers who use pesticides in Worcester and Franklin counties. At least on two meetings per county will be presented with topics to include an overview of SWAP and how it impacts the agricultural community, and the potential conflicts between the agricultural producers and public water suppliers.
3. Provide technical assistance to dairy farmers and farmers who use pesticides in Worcester and Franklin Counties.
4. Conduct training workshops for municipal officials and water suppliers in Worcester and Franklin Counties. Five meetings will be held in each county using the newly created booklet (Task 1).
5. Provide outreach to homeowners and members of the turf and landscaping communities on BMPs to reduce the impacts of lawn care, and landscaping on water quality. This part of the project will target the on-going efforts in Ipswich and Parker watersheds to reach out to municipalities, business owners, and the landscaping community to reduce water and chemical use in landscaping.
6. Facilitate communication between water suppliers, municipal agencies, and farmers who use pesticides in Worcester and Franklin Counties.
7. Provide outreach and resource materials to landowners with small numbers of livestock about water resource protection and management measures.
8. Submit Final Report to the Department.

COST: $85,000
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2002-2004

## WELLHEAD PROTECTION GRANT PROJECTS 2000

### MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
### WELLHEAD PROTECTION GRANT PROJECT 01-01/WHP

PROJECT TITLE: Florida Wellhead Protection Project
INVESTIGATOR: Town of Florida
LOCATION: Deerfield Basin, WERO

DESCRIPTION: This project will construct a new containment building outside the Zone I for the Abbott Memorial School in the Town of Florida, relocate the existing above ground storage tank into the new containment building, seal the school's boiler room floor and floor-drain, install 1.5" threshold for boiler room door, remove pavement in the parking lot a distance of twenty feet from the well and replace it with seeded loam, install a new curb to prevent parking near the immediate vicinity of the well, and develop and implement a source protection educational curriculum. The 2,000-gallon fuel storage tank is currently located within 20 feet of the School's drinking water well. This project will eliminate the threat of contamination to the school's water supply and incorporate student participation and education.

Specific tasks will include:

1. Construct new containment building outside the Zone I. Remove the existing 2,000-gallon above ground fuel storage tank from the School's Zone I protection area and install it into the new building. Purchase and install new double walled fuel tank and fuel lines, and remove the existing fuel lines. Restore original site.
2. Remove parking lot pavement for a distance of twenty feet from the well, replace with seeded loam at least four inches thick, and install a new bituminous curb to prevent parking near the well.
3. Seal the floor-drain and cracks in the school's boiler room floor, located in the Zone I, and install a 1.5" high concrete threshold at the door, to prevent oil or other hazardous materials from leaking into the ground.
4. Develop and implement a source protection educational curriculum. The wellhead protection curriculum will be developed for the $4^{th}$ and $8^{th}$ graders.
5. Submit Final Report to the Department.

COST $31,150
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 01-02/WHP**

PROJECT TITLE: Brimfield Wellhead Protection Project

INVESTIGATOR: Town of Brimfield

LOCATION: Chicopee Basin, WERO

DESCRIPTION: This project will provide secondary containment for a fuel storage tank located within the Zone I and build a new hazardous material containment building outside the Zone I for the Brimfield Housing Authority's water system. The new containment structures must be properly installed according to local, state, and federal requirements.

Specific tasks will include:

1. Purchase and install an approved secondary containment structure for the emergency generator fuel storage tank located within the Zone I protection area. The containment structure must be properly installed according to approved design specifications, and local, state, and federal requirements. Obtain construction permits and related approvals, as appropriate.

2. Build a new hazardous material containment building outside of the Zone I protection area. Obtain all construction and related permits as appropriate.

3. Submit Final Report to the Department.

COST: $15,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 01-03/WHP**

PROJECT TITLE: Bay Path Regional High School Wellhead Protection Project

INVESTIGATOR: Bay Path Regional Vocational Technical High School

LOCATION: Quinebaug Basin, CERO

DESCRIPTION: This project will develop a comprehensive Wellhead Protection Plan for the Bay Path Regional Vocational Technical High School, post wellhead protection signs and educational brochures, develop a groundwater educational curriculum, and provide additional containment for hazardous materials. This project will eliminate a potential threat to the school's water supply.

Specific tasks will include:

1. Develop a comprehensive Wellhead Protection Plan.

2. Post wellhead protection signs and educational brochures inside the School to educate students on wellhead protection measures.

3. Develop and implement a groundwater education curriculum to educate students on wellhead protection and what they can do to help.

4. Purchase and use appropriate secondary containment hazardous chemical storage and disposal. These may include hardcover containment pallets; small and large spill trays; containment drums; etc.

5. Submit Final Report to the Department.

COST: $20,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 01-04/WHP**

PROJECT TITLE: Auburn Wellhead Protection Project-Phase II

INVESTIGATOR: Auburn Water District

LOCATION: Blackstone Basin, CERO

DESCRIPTION: This project will survey and design drainage system improvements to mitigate the threat of stormwater discharges and hazardous releases within the Zone I recharge area of the Auburn Water District's wells 1-3. Given the close proximity of Auburn's most productive drinking water wells to the Massachusetts Turnpike, Interstate 290, and State Route 12, the replacement of a drainage system located in the Zone I of Wells 1-3 is vital to wellhead protection planning. This project will design a relocation of the existing drainage system.

Specific tasks will include:

1. Design drainage system improvements to mitigate the threat of stormwater discharges and hazardous releases within the recharge zone of wells 1-3. Design work to be coordinated with the appropriate representatives from the Massachusetts Highway Department to assure their acceptance of final engineering designs.

2. Submit Final Report to the Department.

COST: $30,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 01-05/WHP**

PROJECT TITLE: Truro Wellhead Protection Project

INVESTIGATOR: Town of Truro

LOCATION: Cape Cod Basin, SERO

DESCRIPTION: This project will conduct three town wide hazardous waste collection events and distribute public educational information to area residents and businesses. The educational effort will focus on three areas: groundwater and wells; hazardous materials and hazardous materials collections; and alternative products and practices that can reduce contaminants in the groundwater. This project targets the protection of the Provincetown Water Department's wells located in highly susceptible soils within the Town of Truro.

Specific tasks will include:

1. Conduct at least three household hazardous collection events. Events to be conducted in late spring, summer, and early fall.

2. Develop and distribute public educational information to area residents and business owners. The educational effort will focus on three areas: groundwater and wells; hazardous materials and hazardous materials collections; and alternative products and practices that can reduce contaminants in the groundwater.

3. Submit Final Report to the Department.

COST: $25,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 01-06/WHP**

PROJECT TITLE: Wayland Wellhead Protection Project

INVESTIGATOR: Town of Wayland

LOCATION: Concord River Basin, NERO

DESCRIPTION: This project will replace a septic system located in the Zone I of Wayland's Well 01G with a 3,500 gallon tight tank, and will place fencing around Baldwin Pond Well 3. These tasks address the town's immediate and long-term source protection needs.

Specific tasks will include:

1. Replace the septic system currently serving the Water Department building located in the Zone I of Wayland's well 01G, with a 3,500-gallon tight tank. The new system must be in compliance with Title 5 of the State Environmental Code. The existing system must be properly abandoned.

2. Purchase and install 250 linear feet of 6-foot high chain-link fencing with barbed wire, one six-foot gate, and one twelve-foot gate with locks around the existing pumping station to restrict unauthorized entry.

3. Quarterly Reports to the Department.

4. Submit a Draft and a Final Project Report to the Department.

COST: $28,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 01-07/WHP**

PROJECT TITLE: Dunstable Wellhead Protection Project

INVESTIGATOR: Town of Dunstable

LOCATION: Nashua Basin, CERO

DESCRIPTION: This project will develop regulatory controls as well as install BMPs to protect the Town of Dunstable's Salmon Brook well, their only groundwater source. This project will install chain link fencing and wellhead protection signs around the well site, create a Groundwater Protection District overlay map, and develop a municipal floor drain regulation and present it for adoption.

Specific tasks will include:

1. Purchase and install 400 linear feet of 8-foot chain-link fencing around the existing pumping station and a swing gate with a lock at the entrance to restrict unauthorized entry at this isolated well site.

2. Purchase and install three wellhead protection signs around the pump station and at the entrance of the well site. Purchase and install seventeen wellhead protection signs throughout the Zone II area to promote public awareness of the well site location.

3. Develop a Groundwater Protection District overlay map.

4. Develop a Board of Health floor drain regulation consistent with the Department's Wellhead Protection Regulation 310 CMR 22.21(2)a(8) or the Department's model BOH floor drain regulation. Present floor drain regulation for official adoption by the Town.

5. Submit Final Report to the Department.

COST: $13,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT NUMBER 01-08/WHP**

PROJECT TITLE: Easthampton Wellhead Protection Project
INVESTIGATOR: City of Easthampton
LOCATION: Connecticut River Basin, WERO

DESCRIPTION: This project will develop and distribute a BMP Toolkit for homeowners, conduct public workshops, develop and implement a groundwater education curriculum, and replace the pump house for the City of Easthampton's Pine Street Well. This project supports Easthampton's water supply protection efforts for the Brook Street Well, Nonotuck Park Well, Pine Street Well, Maloney Well, and Hendrick Street Wellfields. The Barnes Aquifer, the area's sole source aquifer, will be used as a model for educating students about drinking water in Easthampton and how to keep it clean.

Specific tasks will include:

1. Develop residential outreach and educational material on low-cost BMPs for the home and yard to prevent groundwater contamination as well as the groundwater cycle. Prior written approval from the Department is required before project materials are printed and distributed.
2. Conduct two public workshops to disseminate the BMP Toolkit, promote stewardship of the Barnes Aquifer, and present examples of the BMPs described in the Toolkit.
3. Develop groundwater educational curriculum for Easthampton public schools. Using the Barnes Aquifer as a model, conduct at least three classroom lessons on the groundwater cycle.
4. Conduct three workgroups for teachers and environmental organizations to ensure that groundwater education continues in area schools after the project has ended.
5. Replace the pump house for the Pine Street Well to secure the source from rodents, vandals, and other potential sources of contamination.
6. Submit Final Report to the Department.

COST: $46,050
FUNDING: $25,000 by the U.S. Environmental Protection Agency
$21,050 from the City of Easthampton
DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT NUMBER 01-09/WHP**

PROJECT TITLE: West Stockbridge Wellhead Protection Project

INVESTIGATOR: Town of West Stockbridge

LOCATION: Housatonic River Basin, WERO

DESCRIPTION: This project will install protective fencing around the Town of West Stockbridge's Wells 1 and 2, and will relocate an existing ten-foot wide gate. Chain-link fencing will reduce the threat of contamination from a neighboring cattle herd.

Specific tasks will include:

1. Obtain construction permits and related approvals, as appropriate. File a Request for Determination of Applicability with the local Conservation Commission to confirm that the actual work is maintaining, repairing, or replacing, but not substantially enlarging the existing and lawfully located water supply structures.

2. Purchase and install 1,800 linear feet of at least four-foot high, green plastic coated industrial/commercial grade chain link fence, a ten-foot wide swing gate, and a sixteen-foot wide swing gate to protect the Zone I protection area for West Stockbridge's Wells 1 and 2. To restrict cattle without interfering with wildlife habitat, the fence must begin one foot off the ground. Relocate the existing ten-foot wide gate.

3. Submit Final Report to the Department.

COST: $25,500

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 01-10/WHP**

PROJECT TITLE: Old Colony VoTech Wellhead Protection Project

INVESTIGATOR: Old Colony Regional Vocational Technical High School

LOCATION: Buzzards Bay, SERO

DESCRIPTION: This project will replace a waste oil storage tank and a diesel fuel storage tank located in the drinking water well recharge area for Old Colony Regional Vocational Technical High School. New storage tanks that have secondary containment and other appropriate safeguards will be installed on an impermeable surface to provide protection against possible release.

Specific tasks will include:

1. Purchase and install new waste oil and diesel fuel storage tanks located in the drinking water well recharge area for High School with new tanks that have secondary containment and other appropriate safeguards. Remove and properly dispose of any residual diesel or waste oil products as well as the old oil and diesel fuel storage tanks. The new tanks must be properly installed according to approved design specifications, and local, state, and federal requirements.

2. Submit Final Report to the Department.

COST: $5,315

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 01-11/WHP**

PROJECT TITLE: Marshfield Wellhead Protection Project

INVESTIGATOR: Town of Marshfield

LOCATION: South Coastal Basin, SERO

DESCRIPTION: This project will determine the origin of detected threats to the Town of Marshfield's water supplies. This project will monitor groundwater quality for nitrates and MTBE, conduct a survey to locate USTs, conduct a nitrate loading analysis, and design and install stormwater drainage BMPs.

Specific tasks will include:

1. Identify the appropriate information for developing the QAPP.
2. Install four monitoring wells. Sample per approved QAPP.
3. Conduct nitrogen-loading analysis. Evaluate existing residential on-site wastewater treatment systems for impacts to water quality.
4. Conduct a letter survey to locate any remaining underground oil storage tanks that may exist in the area.
5. Design and install BMPs to reduce pollutants entering the Furnace Brook Aquifer. This task will target two outfalls that currently direct stormwater runoff from roadways into an excavated gravel pit where the distance between the surface and ground water is less than five feet in some areas.
6. Design and install BMPs to reduce pollutants entering the Little's Creek Aquifer. This task will design and construct a drainage system with deep sump hooded catch basins, located upgradient of the existing system. The new BMPs will benefit the current drainage system through flow reduction and the removal of pollutants before discharging to the aquifer.
7. Develop an Operation and Maintenance Plan to ensure that the BMPs designed and constructed in Tasks 5 and 6 function as designed.
8. Submit Final Report to the Department.

COST: $44,300

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 01-12/WHP**

PROJECT TITLE: Chelmsford Wellhead Protection Project

INVESTIGATOR: Town of Chelmsford

LOCATION: Merrimack and Concord Basins, NERO

DESCRIPTION: This project will develop a comprehensive Wellhead Protection Plan, conduct storm water monitoring, and install twenty-five wellhead protection signs for the Town of Chelmsford.

Specific tasks will include:

1. Develop a comprehensive Wellhead Protection Plan as per Department guidance. Plans will to include a public educational outreach program.

2. Conduct two rounds of storm water monitoring of four storm drains in accordance with a Department approved QAPP. As a requirement of the QAPP, prior to analysis, the Department must approve sampling locations, depths, sampling protocols, etc.

3. Purchase and install twenty-five wellhead protection signs throughout the Zone II area to promote public awareness of the well site location.

4. Submit Final Report to the Department

COST: $29,950

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 01-13/WHP**

PROJECT TITLE: Russell Wellhead Protection Project

INVESTIGATOR: Town of Russell

LOCATION: Westfield Basin, WERO

DESCRIPTION: This project will develop a comprehensive Wellhead Protection Plan and install fencing around the pump house for the Town of Russell water supply. Wellhead protection efforts will include a public education and outreach program.

Specific tasks will include:

1. Develop a comprehensive Wellhead Protection Plan in accordance with Department guidance. Plans will to include a public educational outreach program.

2. Purchase and install 260 linear feet of 6-foot high chain-link fencing, one single and one double swing gate, and locks to restrict unauthorized entry at the Town's pump station for drinking water well #1.

3. Submit Final Report to the Department.

COST: $22,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 01-14/WHP**

PROJECT TITLE: Hadley Wellhead Protection Project

INVESTIGATOR: Town of Hadley

LOCATION: Connecticut Basin, WERO

DESCRIPTION: This project will develop a comprehensive Wellhead Protection Plan for the Town of Hadley. This project will inventory and map sources of potential contaminants, recommend appropriate best management practices for identified potential threats to water quality, and develop educational material packages for business owners and residents located within the Zone II.

Specific tasks will include:

1. Develop a comprehensive Wellhead Protection Plan in accordance with Department guidance. Inventory and map sources of potential contaminants, conduct field investigations to confirm the identification of potential contaminants, and recommend appropriate best management practices (BMPs) specific to the identified potential threats to water quality. Prior written approval from the Department is required before project materials are printed and distributed

2. Submit Final Report to the Department.

COST: $20,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 01-15/WHP**

PROJECT TITLE: South Grafton Wellhead Protection Project

INVESTIGATOR: South Grafton Water District

LOCATION: Blackstone Basin, CERO

DESCRIPTION: This project will conduct field investigations, water quality analyses, and computer modeling to determine the possible operational limitations of the South Grafton Water District's Ferry Street wells number 02G and 03G to avoid recontamination of the wells. Information will be used to prevent further impacts to the well field from a migrating plume of trichloroethylene. This project will also eliminate a septic system located in the Zone I of Providence Well (01G) by installing a sewer hook-up to an existing sewer system.

Specific tasks will include:

1. Conduct eight rounds of groundwater sampling at the Ferry Street wells (02G, 03G) for VOCs in accordance with a Department approved QAPP. Eleven samples will be collected quarterly in the winter and spring, and monthly during the heavy demand periods (June-November) from two production wells ('triplets') and nine on-site monitoring wells.
2. Develop and implement a computer model of the complicated hydrogeology at the Ferry Street wells to determine the proper pumping regime to prevent re-contamination of the District's wells. Incorporate applicable data as collected by the Department and EPA during the summer of 2001. Determine relative water level measurements as necessary to augment the data collected during last summer, investigate the base flow in the canal and river, and utilize transducers through the fall to better determine if pumping might pull the existing contaminant plume toward well 03G. Conduct groundwater modeling to produce a clear view of the hydrogeological situation, and confirm that the district wells are threatened.
3. Connect single-family home to the existing sewer system and properly abandon the home's septic system located in the Zone I of the Providence Road Well (01G).
4. Submit Final Report to the Department.

COST: $40,000
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 01-16/WHP**

PROJECT TITLE: Pepperell Wellhead Protection Project

INVESTIGATOR: Town of Pepperell

LOCATION: Nashua Basin, CERO

DESCRIPTION: This project will develop a Wellhead Protection Strategy for public wells 01G, 02G, and 03G in the Town of Pepperell. Tasks will include reviewing the adequacy of the Town's water supply protection controls (bylaws, health regulations) to protect drinking water, the adequacy of the local regulatory implementation procedure, evaluating anticipated population growth and its impact on existing water supplies; developing a land acquisition plan, developing a local hazardous materials storage and floor drain inspection program, and evaluating the potential of best management practices.

Specific tasks will include:

1. Review and assess the Town's water supply protection bylaws, water supply protection district map, and board of health regulations. Determine if local controls provide sufficient protection to existing water supplies in accordance with MA Wellhead Protection Regulations 310 CMR 22.21(2). Assess the Town's regulatory implementation procedure.
2. Project anticipated population growth and water demand to evaluate the impacts on existing water supplies**.** Review the implications of the projections with regard to the need for additional regulatory controls.
3. Develop a Land Acquisition Plan identifying available and potentially available parcels of land for water supply protection purposes. Prioritize parcels based on their location in the water supply recharge area, proximity to well, and threat from potential development.
4. Develop a local inspection program for businesses and schools to minimize threats from hazardous material storage and floor drains.
5. Compile tasks 1-4 into a Final Report. This document shall include all regulatory controls, maps, data, public meeting information, reviews, recommendations, and all other information and materials generated in each task.
6. Submit Final Report to the Department.

COST: $17,279
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 01-17/WHP**

PROJECT TITLE: West Brookfield Wellhead Protection Project
INVESTIGATOR: Town of West Brookfield
LOCATION: Chicopee Basin, CERO
DESCRIPTION: This project will develop regulatory controls as well as install BMPs to protect West Brookfield's groundwater sources. This project will install chain link fencing around the Wells 01G and 02G, install wellhead protection signs around the Department approved Zone IIs, update and implement the Town's water supply emergency response plan, update the Aquifer Protection District Bylaw, and develop a Board of Health Floor Drain Regulation and present them for adoption at town meeting.

Specific tasks will include:

1. Update and implement the Town's existing water supply emergency response plan as per the Department guidance. The water conservation component of the emergency plan shall include feasible strategies that address the Town's specific needs for water conservation.
2. Obtain construction permits and related approvals for installation of fencing, as appropriate. File a Request for Determination of Applicability with the local Conservation Commission.
3. Purchase and install 1,000 linear feet of eight-foot high chain link fence with a gate and lock to protect the Zone I of wells 01G and 02G. Purchase and install a single gate and a double gate with locks for well 01G, and a double gate with lock for well 02G.
4. Purchase and install at least forty wellhead protection signs around the Zone IIs for wells 01G and 02G.
5. Update the existing Aquifer Protection District Bylaw, finalized in 1993, with appropriate zoning and non-zoning controls to include the approved Zone II and present the updated Bylaw to the Town for official adoption.
6. Develop a Board of Health floor drain regulation consistent with the Department's Wellhead Protection Regulation 310 CMR 22.21(2)a(8) or the Department's model BOH floor drain regulation. Present floor drain regulation for official adoption.
7. Submit Final Report to the Department.

COST: $30,000
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2002-2003

## SOURCE WATER PROTECTION GRANT PROJECTS 2002

### MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
### SOURCE WATER PROTECTION GRANT PROJECT 02-01/SWT

PROJECT TITLE: Pittsfield Source Water Protection Project
INVESTIGATOR: City of Pittsfield
LOCATION: Housatonic River Basin, WERO

DESCRIPTION: This project will develop final plans and specifications for stormwater BMPs in the Zone A protection areas for two of the City of Pittsfield's drinking water reservoirs as well as conceptual remediation measures for stormwater runoff, erosion, and sedimentation problems in the Zone As.

Specific tasks will include:

1. Develop final plans and specifications for stormwater BMPs for the Cleveland Reservoir (04S) and the Sackett Brook Reservoir (06S). Develop plans to manage and treat road runoff, from the Frank Schnopps/Stonehouse Roads in Pittsfield, and Kirchner/Pittsfield Road in Hinsdale, as per standards for critical resources. Conduct field assessment of existing conditions, including soil conditions, preparation of drainage calculations and sediment load removal estimates. BMPs may include detention/retention of sediment, containment, and shut-down capability, and possible redirection of road runoff out of the watershed.
2. Map with GPS the miles of unmarked trails, logging roads, and high priority erosion sites, as well as locations of existing signs and access points needing signage. Evaluate road and trail conditions and prioritize problem sites based on the potential impact to the water supply (degree of erosion, slope, soil, proximity to a reservoir or tributary, etc.).
3. Develop conceptual designs for BMPs for the problem sites identified and prioritized in Task 2. Investigate the legal status of the trails and roads, and opportunities to close them. Where road closure is not legal or recommended, BMPs may include redirection of road drainage, grass or stone-lined ditches, or other unpaved road BMPs.
4. Submit Quarterly Progress Reports
5. Submit a Draft and a Final Project Report.

COST: $40,000
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2003-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 02-02/SWT**

PROJECT TITLE: Hubbardston Source Water Protection Project

INVESTIGATOR: Town of Hubbardston

LOCATION: Chicopee River Basin, CERO

DESCRIPTION: This project will develop a Forest Management Plan for the Mt. Jefferson Conservation Area in Hubbardston to benefit the Ware River/MWRA public water system. This project will inventory forested watershed lands, develop a map, and incorporate forestry management strategies to ensure a safe water supply for the future. The maintenance of a diverse, healthy forest cover can help protect down gradient drinking water quality.

Specific tasks will include:

1. Develop a Forest Management Plan for the Mt. Jefferson Conservation Area. Inventory existing forest resources. Mark forest boundary with flagging and blazing. Develop map of forest conditions and identified management areas including existing trails. Provide recommendations for forest management and best management practices to maintain and improve water quality, and a healthy, diverse forest. Develop cutting plan. Conduct public informational session to disseminate the Forest Management Plan and to promote stewardship of the conservation area.

2. Submit Quarterly Progress Reports

3. Submit a Draft and a Final Project Report.

COST: $6,250

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2003-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 02-03/SWT**

PROJECT TITLE: South Deerfield Watershed Forest Management Protection Project

INVESTIGATOR: Wigmore Forest Resource Management

LOCATION: Connecticut River Basin, WERO

DESCRIPTION: This project will develop a Forest Management Plan for the South Deerfield Water District's Roaring Brook Watershed. This project will inventory forested watershed lands and prescribe forestry management strategies to ensure a safe water supply for the future. The maintenance of a diverse, healthy forest cover throughout the watershed can help protect reservoir water quality.

Specific tasks will include:

1. Develop a Forest Management Plan for the forested watershed lands of the Roaring Brook Watershed. Inventory forested watershed lands. Develop a GIS based database to monitor inventoried data as well as future inventories. Provide recommendations to manage the watershed forest to ensure a safe water supply for the future.

2. Submit Quarterly Progress Reports

3. Submit a Draft and a Final Project Report.

COST: $10,570

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2003-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 02-04/SWT**

PROJECT TITLE: Bridgewater Source Water Protection Project

INVESTIGATOR: Town of Bridgewater

LOCATION: Taunton River Basin, SERO

DESCRIPTION: This project will provide water supply protection outreach and education to existing businesses, abutting residents, and an elementary school complex located within the Town of Bridgewater's Aquifer Protection District for the four public drinking water wells at Carver's Pond.

Specific tasks will include:

1. Provide water supply protection outreach to the elementary school (grades $2^{nd}$-$4^{th)}$ located within the Town's Aquifer Protection District. Educate students, on-site at Carver's Pond and the water treatment facility, and in the classroom, on the water cycle, and fundamental importance of groundwater protection and the protection of the water supply.
2. Provide water supply protection outreach and education to businesses and residents located within the Aquifer Protection District for the wells at Carver's Pond. Target initial outreach efforts to the businesses and residents in close proximity to this area. Conduct one informational workshop to the business community, and present regulatory and non-regulatory protection efforts as well as BMPs that could be implemented to assist in protecting the water supply. Provide individual businesses with on-site assessments of existing and possible future threats to water quality. Conduct neighborhood workshops and provide educational materials on conservation efforts, source protection, and environmental safeguards to area residents. Conduct a land-use inventory and develop a GIS land use inventory base map for use in planning and coordinating outreach efforts.
3. Submit Quarterly Progress Reports
4. Submit a Draft and a Final Project Report.

COST: $18,818
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2003-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 02-05/SWT**

PROJECT TITLE: Lowell Source Water Protection Project
INVESTIGATOR: U.S. Geological Survey
LOCATION: Merrimack River Basin, NERO

DESCRIPTION: This project will conduct a dye tracer study in the Lower Merrimack River, from the Massachusetts-New Hampshire state line up to the drinking water intake at Lawrence, Massachusetts to determine time-of-travel rates and dispersion characteristics critical to an appropriate response to an upstream spill or release. The results from the data analysis will allow uses to determine arrival time, peak concentration, and time of passage of a potential spill anywhere along the study reaches in the lower Merrimack River.

Specific tasks will include:

1. Develop an EPA approved QAPP
2. Select discharge and sampling site, assemble teams, notify local press, and finalize plans, assignments, expectations, and sampling schedules.
3. Collect background samples at each site, inject dye, and collect samples according to the approved QAPP until the dye tracer concentration reaches a level that is less than 10 percent of the peak concentration observed at that location. Retain samples for laboratory analysis.
4. Reanalyze samples at a common temperature, plot time-concentration curves for each sample site, and determine the travel time to tracer leading edge, peak concentration, centroid concentration, and 10-percent peak concentration-trailing edge for each sampling site. For each trace conducted, plot travel time discharge curves for each sample site, plot travel time distance curves for all tests for the entire study reach, and determine unit-concentration relation for each sampling site.
5. Present results drafts and final results to cooperators, and publish.
6. Submit Quarterly Progress Reports
7. Submit a Draft and a Final Project Report.

COST: $55,000

FUNDING: 82% by the U.S. Environmental Protection Agency
18% by the U.S. Geological Survey

DURATION: 2003-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 02-06/SWT**

PROJECT TITLE: Greenfield Source Water Protection Project

INVESTIGATOR: Tighe & Bond, Inc.

LOCATION: Deerfield River Basin, WERO

DESCRIPTION: This project will conduct a storm drainage study, survey underground storage tanks, and conduct a public education program for the Town of Greenfield's Leyden Glen Reservoir.

Specific tasks will include:

1. Conduct a storm drainage study for the Leyden Glen Reservoir watershed. Study and map the entire drainage system including the piping and outfalls. Focus study on the Greenfield Road and Brattleboro Road areas. Locate, survey, and map drainage structures along these roadways. Assess existing storm drainage capacity and provide suggestions for improvement alternatives concerning storm water discharge and emergency response action strategies.

2. Inventory underground storage tanks located within the Leyden Glen Reservoir watershed and encourage property owners to remove USTs.

3. Develop an educational brochure/pamphlet concerning the reservoir system, contaminant transport, potential impacts, and BMPs. Distribute to property owners with the Leyden Glen Reservoir watershed. Conduct educational presentation at the Leyden Elementary School educate students on the water cycle, and fundamental importance of source water protection and the protection of the water supply.

4. Submit Quarterly Progress Reports

5. Submit a Draft and a Final Project Report.

COST: $22,700

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2003-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 02-07/SWT**

PROJECT TITLE: Amherst Source Water Protection Project
INVESTIGATOR: Town of Amherst
LOCATION: Connecticut Basin, WERO
DESCRIPTION: This project will install two additional groundwater monitoring wells near the Town of Amherst's closed landfill; develop a Wellhead Protection Plan; implement a groundwater educational curriculum for the school system; develop a forestry and timber management plan for the Town's Pelham Reservoir and Atkins Reservoir Watersheds; and a Surface Water Supply Protection Plan for the Pelham Reservoir. This project will prescribe forestry management strategies to ensure a safe drinking water supply for the future.

Specific tasks will include:

1. Install two additional monitoring wells in the Zone IIs for wells #1 and #2 in order to monitor potential impacts (water quality and water level) from the closed and capped former Town landfill adjacent to the Zone IIs and incorporate data from these wells into the current groundwater monitoring program.
2. Develop groundwater educational programs for the Town's elementary school students. Build upon existing education programs to include a groundwater protection component.
3. Develop a comprehensive Wellhead Protection Plan for the Town's wells.
4. Develop a comprehensive Forest and Timber Management Plan for the forested watershed lands of the Pelham Reservoir and Atkins Reservoir Watersheds. Incorporate the recently developed Timber Stand Inventory that includes a forest cutting plan into the Forest and Timber Management Plan.
5. Develop a Surface Water Supply Protection Plan including an emergency response component, for the Pelham Reservoir system. Conduct municipal and town meetings to educate stakeholders on the plan, its function, and importance.
6. Submit Quarterly Progress Reports
7. Submit a Draft and a Final Project Report.

COST: $48,000
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2003-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 02-08/SWT**

PROJECT TITLE: Upper Neponset River Source Water Protection Project
INVESTIGATOR: Neponset River Watershed Association
LOCATION: Boston Harbor Basin, NERO/SERO
DESCRIPTION: This project will assess and implement opportunities for inter-municipal assistance at 31 public drinking water wells in seven Upper Neponset River Watershed communities in the event of a water supply emergency. This project will coordinate and improve emergency response for all of the drinking water sources in the communities of Dedham, Foxborough, Medfield, Norwood, Sharon, Walpole, and Westwood.

Specific tasks will include:

1. Establish multi-town collaborative to assess and implement opportunities for inter-municipal assistance in the event of a water supply emergency. Convene three-to-four meetings in an effort to: a) assess the engineering, legal, and political opportunities and/or obstacles to implementing such a system, b) maximize the utilization of existing infrastructure so as to improve redundancy while minimizing capital costs and conserving limited water supplies, c) encourage regional collaboration among communities facing similar challenges on a range of water management issues, and d) recommend infrastructure improvements and MOUs needed to implement such a system.
2. Compile current and projected water demand for each community. Contrast these demands with an inventory of peak system capacity for pumping, delivery, and treatment during both normal and emergency situations. Inventory existing interconnections between the various municipal distribution systems. Determine where there may be surplus capacity that could be made available on an emergency basis or where such capacity could be created with minimal additional infrastructure development. Map existing and proposed interconnections, and develop infrastructure analysis report including cost estimate for modifications to improve interconnections.
3. Conduct regulatory review to determine what additional local authority may be needed to implement the system. Develop MOUs and language for town meeting adoption for each member of the Collaborative.
4. Submit Quarterly Progress Reports.
5. Submit a Draft and a Final Project Report.

COST: $40,822
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2003-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 02-09/SWT**

PROJECT TITLE: West Springfield Source Water Protection Project

INVESTIGATOR: Tighe & Bond, Inc.

LOCATION: Westfield River Basin, WERO

DESCRIPTION: This project will develop an Interior Roadway Improvement Plan for West Springfield's Bear Hole Reservoir. This project will identify nonpublic roadway problem areas that may compromise the quality of drinking water, located in the watershed within ½ mile of the reservoir and Paucatuck Brook and provide recommendations for roadway improvements relative to watershed patrolling (e.g., restricting public access while improving roadway conditions for routine inspections and patrolling of watershed area).

Specific tasks will include:

1. Develop a Comprehensive Interior Roadway Improvement Plan for the Bear Hole Reservoir. Identify roadway problem areas, such as areas of severe erosion (scouring, insufficient drainage, blow outs, etc.) located on non-public roadways within ½ mile of the reservoir and its major supply, Paucatuck Brook, which may compromise the water quality of the reservoir. Provide recommendations for roadway runoff solutions at six specific problem areas. Provide recommendations for roadway improvements relative to watershed patrolling. Design a stormwater collection system at a roadway stream crossing. Provide recommendations on the placement of security fencing. Develop an implementation schedule.

2. Submit Quarterly Progress Reports.

3. Submit a Draft and a Final Project Report.

COST: $25,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2003-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**SOURCE WATER PROTECTION GRANT PROJECT 02-10/SWT**

PROJECT TITLE: South Deerfield Source Water Protection Project
INVESTIGATOR: South Deerfield Water Supply District
LOCATION: Connecticut River Basin, WERO

DESCRIPTION: This project will develop a Stormwater Management Plan including a public education program, to benefit the South Deerfield Water Supply District's Roaring Brook Reservoir System, which is comprised of the Roaring Brook Reservoir watershed and the Conway Reservoir watershed. The Stormwater Management Plan will address activities within the Roaring Brook Reservoir System Watershed and provide a mechanism to mitigate impacts to drinking water quality from road, construction, residential, and agricultural related activities.

Specific tasks will include:

1. Assess existing stormwater management throughout the Watershed. Assess known areas of erosion, flooding, and agricultural activities in an effort to confirm the locations and descriptions of non-point sources of pollution associated with inadequate stormwater management infrastructure and/or inadequate or non-existent non-structural BMPs. Identify likely sources of non-point source pollution including large parking lots, agricultural and industrial areas, areas prone to flooding, dirt roads, and construction sites.
2. Develop site-specific conceptual BMP recommendations to protect water quality, flow rates, and volumes, and to provide pre-discharge treatment of stormwater. Include cost estimates and maintenance schedules. Develop an operations and maintenance plan for municipal operations
3. Assess public education programs already in place in the Watershed. Develop a public education and outreach program promoting the protection of the District's water supply. Develop informative brochures for targeted audiences.
4. Submit Quarterly Progress Reports.
5. Submit a Draft and a Final Project Report.

COST: $15,840
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2003-2004

## WELLHEAD PROTECTION GRANT PROJECTS 2002

### MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
### WELLHEAD PROTECTION GRANT PROJECT 02-01/WHP

PROJECT TITLE: Leverett Wellhead Protection Project
INVESTIGATOR: Town of Leverett
LOCATION: Connecticut River Basin, WERO
DESCRIPTION: This project will extend the well casing above the Leverett elementary school's basement floor, seal the floor drain in the boiler room, upgrade the existing fuel line, install a backwash injection well, install monitoring wells, conduct a sewerage flow study, and re-construct nearby road shoulder and school walkway to mitigate storm water flow.

Specific tasks will include:

1. Extend the existing well casing to 18 inches above the school's basement floor. Properly seal the floor-drain in the school's boiler room floor located in the Zone I protection area.
2. Purchase and install new double walled fuel lines and remove the existing fuel lines.
3. Install a backwash injection well in the school's playing fields to accept the backflow waste from the existing water softener.
4. Submit QAPP development information to the Department.
5. Purchase and install up to six monitoring wells around the septic system and the drinking water well to establish groundwater flow and to monitor the quality of groundwater leaving the sewage disposal system and entering the well's recharge area.
6. Investigate the benefits of having additional flows added to the school's sewerage disposal system in an effort to provide uniform flow. Develop design plans, including the framework for the creation of a Sewer District and the agreements needed between the town and contributing homes for the addition of sewerage flows from the adjacent homes located within the IWPA.
7. Re-grade and re-pave the shoulder of Montague Road along the front of the school, from the edge of the northerly parking lot to the edge of the southerly parking lot, to direct the stormwater runoff from Montague Road to the southerly parking area and away from the Zone I of the well.
8. Re-grade and install a new concrete walk in front of the school adjacent to the well to eliminate ponding problem.
9. Submit Quarterly Progress Reports.
10. Submit a Draft and a Final Project Report.

COST: $45,000
FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2003-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 02-02/WHP**

PROJECT TITLE: Bridgewater Wellhead Protection Project

INVESTIGATOR: Town of Bridgewater

LOCATION: Taunton Basin, SERO

DESCRIPTION: This project will install security fencing around six of the Town of Bridgewater's drinking water wells (02G, 03G, 04G, 05G, 06G, 07G, 09G, and 10G) and metal window grates on the windows of the water treatment facility for wells 03G, 04G, 06G, and 7G, and develop GIS data layers of the Town's water system and water resources. These tasks will address the town's immediate and long-term source protection needs.

Specific tasks will include:

1. Purchase and install 6-foot high-galvanized chain-link fence with barbed wire and a four-foot gate with a lock in an effort to secure each of the Town's wells (02G, 03G, 04G, 05G, 06G, 07G, 09G, and 10G).

2. Purchase and install metal grates to secure all the windows at the Carver Pond water treatment facility.

3. Develop GIS data layers that include information on the Town's aquifers, recharge zone hydrology, land-use, sewered areas, USTs, zoning districts, drinking water supply infrastructure, drainage infrastructure, etc. as discussed in the contractor's technical proposal.

4. Submit Quarterly Progress Reports.

5. Submit a Draft and a Final Project Report.

COST: $29,147

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 02-03/WHP**

PROJECT TITLE: Oakwood Wellhead Protection Project

INVESTIGATOR: Oakwood Mobile Park Limited Partnership (Ware)

LOCATION: Connecticut River Basin, WERO

DESCRIPTION: This project will replace Oakwood Mobile Park's problematic diesel powered backup electrical generator with an automatically controlled propane-powered electrical generator to prevent untreated sewage from backing up and entering the water supply during power outages. The existing generator is not adequate to assure the continued pumping of septic effluent – and preventing an overflow of untreated sewage upgradient of the wellhead-in event of power outage.

Specific tasks will include:

1. Purchase and install propane powered backup generator complete with a new LP tank, expanded concrete pad, automatic startup switch and battery, including remote start/stop controls, and electrical wiring connection. Remove and properly dispose of the diesel powered generator, fuel tank, and the contents of the fuel tank.

2. Submit Quarterly Progress Reports.

3. Submit a Draft and a Final Project Report.

COST: $21,500

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2003-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 02-04/WHP**

PROJECT TITLE: Three Rivers Wellhead Protection Project

INVESTIGATOR: Three Rivers Water District (Palmer)

LOCATION: Chicopee River Basin, WERO

DESCRIPTION: This project will develop a Wellhead Protection Plan for the Three Rivers Fire District's drinking water wells 01G and 03G, and update the District's Emergency Response Plan. The Wellhead Protection Plan will include a public education and outreach program, implement a Wellhead Protection Bylaw, and update their Emergency Response Plan. The Emergency Response Plan will include identification of businesses and potential contamination sources upstream, and drafting and executing Memoranda of Understanding with government entities and owner/operators of potential contamination sites operating upstream of the District's wells (well 03G is under the influence of the river).

Specific tasks will include:

1. Develop a Wellhead Protection Plan. The Plan will include a public education and outreach program, and an Emergency Response Plan that features an inventory and mapping of likely classes and sources of contaminants within the Zone II and upstream along the Ware River, and reaction protocols and well operation strategies. The Emergency Response Plan will include Memoranda of Understanding with government entities and owner/operators of potential contamination sites.

2. Submit Quarterly Progress Reports.

3. Submit a Draft and a Final Project Report.

COST: $24,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2003-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 02-05/WHP**

PROJECT TITLE: Uxbridge Wellhead Protection Project

INVESTIGATOR: Town of Uxbridge

LOCATION: Blackstone River Basin, CERO

DESCRIPTION: This project will install intrusion alarms, motion sensor lighting, and wellhead protection signs to protect the Town of Uxbridge's drinking water wells. Wellhead protection signs will be installed along the boundaries of the Zone IIs for the Blackstone Street and Bernat Street wells.

Specific tasks will include:

1. Purchase and install intrusion alarms, motion sensors, and motion sensor lighting to protect the Blackstone pump station and the Bernat pump station.

2. Purchase and install the Department approved wellhead protection signs every 500 feet along the Zone II boundaries for the Blackstone Street and Bernat Street wells.

3. Submit Quarterly Progress Reports.

4. Submit a Draft and a Final Project Report.

COST: $18,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2003-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 02-06/WHP**

PROJECT TITLE: Rockport Wellhead Protection Project

INVESTIGATOR: Town of Rockport

LOCATION: North Coastal Basin, NERO

DESCRIPTION: This project will develop a comprehensive Wellhead Protection Plan for the Town of Rockport and install ten wellhead protection signs. The Plan will include a public education and outreach program, a land acquisition plan, and an updated Emergency Response Plan.

Specific tasks will include:

1. Develop a comprehensive Wellhead Protection Plan.

2. Submit QAPP development information to the Department in a timely manner.

3. Inventory major storm drain discharges within the Zone II protection areas. Conduct field visits and review existing storm drain maps. Prioritize and rank drains with respect to their potential impact on stormwater quality and quantity. Recommend structural and non-structural BMPs to mitigate impacts and minimize future impacts.

4. Conduct two rounds of wet weather end-of-pipe stormwater quality sampling at up to four drains, as per the approved QAPP, for suspected "hot spot" stormdrains that discharge within the Zone II.

5. Develop a public education and outreach program, stencil storm drains, and post up to ten wellhead protection signs around the Zone II. Conduct up to two educational workshops for the Chamber of Commerce.

6. Submit Quarterly Progress Reports.

7. Submit a Draft and a Final Project Report.

COST: $25,000
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2002-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 02-07/WHP**

PROJECT TITLE: North Reading Wellhead Protection Project

INVESTIGATOR: Town of North Reading

LOCATION: Ipswich River Basin, NERO

DESCRIPTION: This project will develop a comprehensive Wellhead Protection Plan including an Emergency Response Plan for the Town of North Reading. The project will inventory and create a GIS map of the storm water drainage systems and other potential contaminating land uses located within the Zone IIs.

Specific tasks will include:

1. Develop a comprehensive Wellhead Protection Plan.

2. Inventory and map the storm water drainage systems, piping through outfalls and other potential contaminating land uses located within Zone IIs. Review existing storm drain maps and conduct field visits as appropriate.

3. Submit Quarterly Progress Reports.

4. Submit a Draft and a Final Project Report.

COST: $24,800

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2003-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 02-08/WHP**

PROJECT TITLE: Cummington Wellhead Protection Project

INVESTIGATOR: Town of Cummington

LOCATION: Westfield River Basin, WERO

DESCRIPTION: This project will develop a Wellhead Protection Plan for the four drinking water wells operated by the two water departments in the Town of Cummington, install security systems for West Cummington pump house and Center Well pump house, and install chain-link fencing around the West Cummington pump house.

1. Develop a comprehensive Wellhead Protection Plan for the Town of Cummington. The Plan must include: a public outreach/education program for residents and businesses, a framework for establishing and implementing a septic system inspection program, a land acquisition plan, a Hazardous Materials and Floor Drain Inspection Program, and strategies for protecting the IWPAs from high risk land use.

2. Purchase and install security systems including motion detectors and sirens at the West Cummington and Cummington Center pump houses.

3. Purchase and install a minimum of 800 linear feet of 6-foot high-galvanized or green plastic coated chain-link fence with barbed wire and two double gates with locks to secure the West Cummington pump house.

4. Submit Quarterly Progress Reports.

5. Submit a Draft and a Final Project Report.

COST: $27,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2003-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 02-10/WHP**

PROJECT TITLE: Hudson Wellhead Protection Project

INVESTIGATOR: Town of Hudson

LOCATION: Concord River Basin, CERO

DESCRIPTION: This project will purchase and install intrusion alarms for each of the Town of Hudson's five wells (02G through 06G) and a fire detector alarm at one well (02G).

Specific tasks will include:

1. Purchase and install intrusion alarms to protect drinking water wells 02G through 06G.

2. Purchase and install a fire detector to protect drinking water well 02G.

3. Submit Quarterly Progress Reports.

4. Submit a Draft and a Final Project Report.

COST: $15,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2002-2003

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 02-11/WHP**

PROJECT TITLE: Bernardston Wellhead Protection Project

INVESTIGATOR: Berndardston Fire and Water District

LOCATION: Connecticut River Basin, WERO

DESCRIPTION: This project will install fencing and wellhead protection signs to secure the Bernardston Fire and Water District's wells 01G, 02G, and 03G. These tasks will address the town's immediate and long-term source protection needs.

Specific tasks will include:

1. Purchase and install 8-foot high-galvanized chain-link fence and a twelve-foot long gate with a lock around to secure the District's Sugar House well (03G). The fence must be properly installed according to approved design specifications, and local, state, and federal requirements. Obtain construction permits and related approvals, as appropriate.

2. Purchase and install guardrail to secure the District's Barton Road wells (01G and 02G). The guardrail must be properly installed according to approved design specifications, and local, state, and federal requirements. Obtain construction permits and related approvals, as appropriate.

3. Purchase and install Department approved wellhead protection signs throughout the Zone II area to promote public awareness of the well site location.

4. Submit Quarterly Progress Reports.

5. Submit a Draft and a Final Project Report.

COST: $20,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2003-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 02-12/WHP**

PROJECT TITLE: Northfield Mount Hermon Wellhead Protection Project

INVESTIGATOR: Northfield Mount Hermon School

LOCATION: Connecticut River Basin, WERO

DESCRIPTION: This project will survey Northfield Mount Hermon School's tubular wellfield (located in the Town of Gill) to determine wellhead elevations, update the site plan, and install chain-link security fencing. As the wellfield is located within a flood zone, accurate wellhead elevations will help to determine if any wells are at risk of potential infiltration.

Specific tasks will include:

1. Survey Northfield Mount Hermon School's tubular wellfield to determine wellhead elevations relative to a US Geological Survey datum and update the site plan.

2. Purchase and install 8-foot high green vinyl coated chain-link fence with a twelve-foot wide access gate and lock around the perimeter of the School's wellfield. The fence must be properly installed according to approved design specifications, and local, state, and federal requirements. Obtain construction permits and related approvals, as appropriate.

3. Submit Quarterly Progress Reports.

4. Submit a Draft and a Final Project Report.

COST: $20,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2003-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 02-13/WHP**

PROJECT TITLE: Auburn Wellhead Protection Project

INVESTIGATOR: Auburn Water District

LOCATION: Blackstone River Basin, CERO

DESCRIPTION: This project will develop a schematic plan of drainage patterns for the area around Auburn Water District's wells 4, 5, and 6, and install monitoring wells and sample water quality around well 6. The drainage map will be incorporated into the existing Schematic Map of Drainage Patterns and Emergency Response Plan, and will be used to assist local authorities during emergency response events. Additional monitoring wells and sampling will help determine the current water quality threat posed to well 6 and to provide a better understanding of the behavior of MTBE detected in the vicinity of the well.

Specific tasks will include:

1. Create drainage maps of major roadways near wells 4, 5, and 6. Research existing drainage plans for the nearby highways and roads, including Interstate 290 and Route 12. Conduct field verification of outfall pipes and drainage systems, and confirm flow directions and locations of discharge. Prepare drainage maps for identification of potential contamination migration pathways. Incorporate new drainage map into the District's Master Drainage Plan and emergency response plan.
2. Submit QAPP development information to the Department in a timely manner
3. Install one monitoring well near the District's well 6 in an effort to differentiate between sources of different plumes of MTBE migrating from two separate release sites. Install a second monitoring well to provide early detection of MTBE migrating toward wells 4 and 5.
4. Conduct water quality sampling per the approved QAPP.
5. Submit Quarterly Progress Reports.
6. Submit a Draft and a Final Project Report.

COST: $40,000
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2002-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 02-14/WHP**

PROJECT TITLE: Canton Wellhead Protection Project
INVESTIGATOR: Town of Canton
LOCATION: Boston Harbor Basin, NERO
DESCRIPTION: This project will develop and establish a local Hazardous Materials and Floor Drain Inspection Program for the Zone II protection areas of drinking water wells 06G, 07G, and 10G, and provide a mechanism for the Town of Canton to mitigate impacts to drinking water quality from land uses and activities involving hazardous materials/waste and floor drain discharges.

Specific tasks will include:

1. Develop a Hazardous Materials and Floor Drain Inspection Program that includes the following activities:
   - Develop a hazardous materials/waste and floor drain inspection form to identify environmental hazards.
   - Conduct a land use survey of the Zone II for wells 06G, 07G, and 10G.
   - Create a database and overlay map of hazardous material/waste facilities and activities.
   - Develop an outline and strategies for public education and small business training for water supply protection.
   - Review and update as needed local enforcement tools related to the permitting, registration, storage, or use of hazardous material/waste and floor drain discharges.
   - Compile inventory findings, results of preliminary inspections as well as follow-up visits to those sites requiring immediate action or additional investigation, hazardous material use/storage/waste maps and data, and follow-up action timelines into a program document that includes goals, objectives, methods, and strategies for ongoing implementation.

2. Submit Quarterly Progress Reports.

3. Submit a Draft and a Final Project Report.

COST: $30,000
FUNDING: 100% by the U.S. Environmental Protection Agency
DURATION: 2003-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 02-15/WHP**

PROJECT TITLE: Sturbridge Wellhead Protection Project

INVESTIGATOR: Town of Sturbridge

LOCATION: Quinebaug River Basin, CERO

DESCRIPTION: This project will develop a Wellhead Protection Plan for the Town of Sturbridge. The Plan will include a public education and outreach program, a land acquisition plan, and an updated Emergency Response Plan.

Specific tasks will include:

1. Develop a Wellhead Protection Plan as per the Department guidance. The Wellhead Protection Plan will identify the Town's goals and strategies for protecting drinking water supplies and include a timeline for implementation.

2. Submit Quarterly Progress Reports.

3. Submit a Draft and a Final Project Report.

COST: $20,000

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2003-2004

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**WELLHEAD PROTECTION GRANT PROJECT 02-16/WHP**

PROJECT TITLE: Barnstable Wellhead Protection Project

INVESTIGATOR: Town of Barnstable

LOCATION: Cape Cod Basin, SERO

DESCRIPTION: This project will install a guardrail along Mary Dunn Road in Hyannis adjacent to the Barnstable Water Company Well fields. This project will inhibit motor vehicle access and illegal dumping that occurs in the water supply area.

Specific tasks will include:

1. Purchase and install approximately 3,255 linear feet of guardrail and support posts along the east side of Mary Dunn Road in Hyannis adjacent to the Barnstable Water Company's wellfields to prevent motor vehicle access to the area. The guardrail should extend from the vicinity of the intersection of Independence Drive and Mary Dunn Road, southward to Airport Road, and join up with the existing fencing at the Barnstable Municipal Airport.

2. Purchase and install approximately 500 linear feet of guardrail and support posts along the west side of Mary Dunn Road in Hyannis adjacent to the Barnstable Water Company's wellfields to prevent illegal dumping prevalent within the Zone Is and the pumping station located just off of the road.

3. Submit Quarterly Progress Reports.

4. Submit a Draft and a Final Project Report.

COST: $40,553

FUNDING: 100% by the U.S. Environmental Protection Agency

DURATION: 2003-2003